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# American Journal of Surgery and Gynecology.

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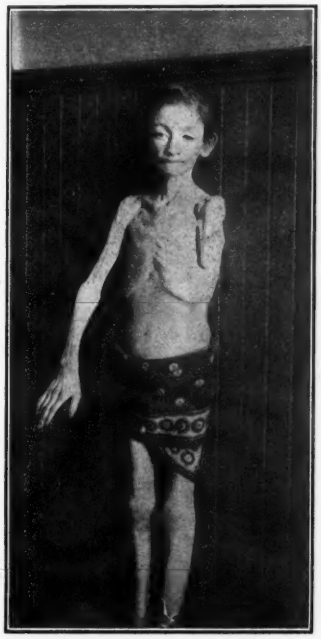
## DIABETIC GANGRENE—AMPUTATION—RECOVERY.

BY L. BRANNON, M. D., JOLIET, ILL.
Formerly House Surgeon at the Chicago Post-Graduate Medical School.

The accompanying cut is the picture of Charley C——, who is nineteen years of age, four feet and three inches high, weighs scarcely more than thirty-five pounds, and looks like a mummy. His illness began about nine years ago. His mother says it was



caused by an injury which he received while at school. He never entirely recovered from this sickness, which developt into diabetes mellitus; and with a few years, wasting had advanced to a remarkable degree. He had lost his vision and his hair had all fallen out. The scalp was covered with an eczematous eruption and ulcers frequently appeared on various parts of the body.

When seen by my brother (Dr. Geo. H. Brannon, of Manhattan, Ill.), in October, 1899, he had well-markt gangrene of the middle finger of the left hand, between the first and second joints, where he wore a brass ring. The picture well represents his general condition when he entered the St. Joseph's Hospital on the 20th of October, 1899. At this time there was some prospect of the finger sloughing off at the first joint. For this reason, it was not amputated, for it was hardly reasonable to expect that the stump would heal when the vitality was reduced to the extent his emaciation indicated. Seven days later, as a last resort, we decided to amputate at the middle and upper third of the arm, since the gangrene had extended to the palm of the hand. The patient was anesthetized with an unusually small amount of chloroform, the administration of which was discontinued as soon as the bone was sawed off. He was not under the anesthetic more than ten minutes. The flaps were united with one stitch, which was loosely tied. Unfortunately, the wound was not drest on the day following the operation, as was intended at the time the stitch was put in. When drest on the second day, the stitch was removed, for all of the included tissues had become black. The gangrene spread until a spot large as a fifty-cent piece was involved. After this the wound was dresst daily, until the stump healed. Balsam of Peru was freely applied to the whole stump, until it irritated the skin, then it was used only on the part affected with gangrene. If this stitch had been left out, it seems to me quite certain that gangrene would not have appeared in the stump.

During his entire illness, he has had but little, if any, antidiabetic treatment, and no restriction in diet. He eats great quantities of sugar, candies, bananas and everything else he wants. His mind is bright and shows no evidence of enfeeblement, unless it be of the controlling centers, for he is more irritable than he should be for one of his age.

For the last ten months he has been stopping at the County House and Dr. Frederick, who has since had charge of the case, informs me that during the summer the eczema of the scalp disappeared, his hair grew, and his general condition improved, but with the beginning of winter, he commenced to decline and is now very feeble, and to all appearances will not last much longer.

Roswell Park in his treatise on surgery says: "It is especially in the forms of diabetic and senile gangrene that surgeons have laid down the rule that if amputation be done at all, it must be high up. While amputation for traumatic and acute cases is in the majority of instances, if not too long delayed, successful, in saving life, in the senile, and particularly in the diabetic forms, it is in the majority of cases a disappointment."

Saundby, in his treatise on Renal and Urinary diseases, on the subject of duration of diabetes mellitus, writes as follows: "It is true as a general statement, that diabetes runs a longer course in direct proportion to age. In other words, it is an acute and rapidly fatal disease in children and young persons, lasting only weeks or months, or perhaps a year or more. Nevertheless, I have met with cases in children that seem to run a very chronic course; and Pavy has related instances lasting five, eight and even more years. Agnes I.—— was seen last in 1894, and had then been ill eight years; she was fifteen, and lookt like a child of six or seven."

The chief features in this case are the long duration of the disease, for one of his age, and that success in this instance would not have been obtained in case the flaps had been completely sutured, even tho the amputation was made at a point far from the gangrene.

## TREATMENT OF ACUTE AND CHRONIC LYMPH NODES OF THE NECK.*

BY H. HORACE GRANT, M. D., LOUISVILLE, KY.
Professor of Surgery in Hospital College of Medicine.

Enlargement of the lymph glands of the neck is so common and diversity of opinion as to proper treatment so great that a consideration of the subject here may result favorably to the profession. All are agreed upon the usefulness of normal lymphatic glands; therefore nearly all will agree that no gland should be removed which can be saved.

It is not always possible for us to say when these glands are healthy, whether they are enlarged from septic infection or other cause, whether they are tuberculous, etc.

A very common source of enlargement is an acute infective process running along the lymphatics from an injured part; as from a sore throat or mouth. If they become purulent the original site of trouble may entirely recover, yet the system be subject to a septic infection (septicemia) from the secondary infected focus. On the other hand, circumglandular suppuration with softening and maceration of the glands may occur for two or three weeks without any constitutional disturbance.

Whether simple drainage is or is not the best treatment for this condition has not yet been settled. Liberation of pus is imperative—all admit; but many surgeons claim that instead of simple incision and drainage the glands should be dissected out in their entirety. The matter of dispute is particularly unsettled as to suppurating tuberculous glands. There are four forms of chronic tuberculous adenitis: (1) single, indurated, slowly-growing gland; (2) multiple indurated glands with inclination to break down; (3) softened, suppurating gland; (4) old, suppurating gland with sinus.

The progress of events is modified by the powers of resistance, and by the character of gland enlargement. Thus in those multiple glands which show a tendency to increase in number palpably, there is a constitutional involvement which will cause a recurrence if the enlarged glands are extirpated. In other instances, the trouble is purely a localized tuberculosis (probably

*Abstract of paper read at Mississippi Valley Medical Association, 1900.

due to infection thru the tonsils or accompanying adenoids) and can be cured by removal. Yet so good a man as Wheaton recently exprest the opinion that the protective power of the glands is not only so perfect (even when enlarged), but so extensively and inexplicably exercised, that the removal of such a help to health is often a crime when not suppurating. Schleich, taking somewhat the same view and dilating upon the difficulties of the operative steps, advises a conservatism that seems almost unsurgical. Dowd, Morgan, Bentham, Robinson, Petit and other recent authorities adopt more radical procedures, some, perhaps, going to the extreme in the opposite direction.

The lymphatic glands do undoubtedly more or less perfectly prevent the invasion of the constitution by infections. In ordinary normal conditions they effect this without becoming irritated; when more work is put on them than can well be borne, swelling, redness and tenderness, indicating inflammation, supervene. With this inflammation, the function becomes interfered with or perhaps destroyed. If, perchance, the invading poison is not too virulent, Nature may correct the inflammation by resolution; if it is virulent—acute or chronic—not only will that gland and other neighboring glands be rendered "hors de combat," but the invading poison will advance beyond them, and leave them, not only useless to protect, but themselves disseminators of poison—thus helping to keep up the constitutional trouble. If the virus is of a chronic affection, this influence, tho pursuing the same channels, will be slower and less depressing, but the analogy is the same.

Schleich states that he was led to give his views and experience with relation to the treatment of this condition because of the absence of satisfactory data as to the surgical treatment. It does not seem, however, that the conclusions he reaches are approved by the present surgical opinion in this country; hence the subject offers a field for investigation. Granted that in the healthy state the lymphatic glands filter and modify virus, and protect the constitution—that once removed the protection is often partially, and sometimes wholly, lost—that elephantiasis sometimes succeeds the removal of lymph ganglia—that complete removal is sometimes difficult or indeed impossible—that death may occasionally follow the operation—and last (perhaps the only important objection) that there may follow dissemination of the poison; yet we who favor removal of infected glands have answers to all.

It is well known that all functionating glands in the body act, not only in support of each other, but often vicariously. The loss of a kidney is promptly made up for by its fellow; the establishment of collateral circulation after the obliteration of an artery is but the work of a few days—early enough to prevent gangrene of an extremity; disabled ducts and whole groups of damaged muscles are compensated for by able substitutes. Not only, therefore, is it rational to expect the remaining countless glands and lymph radicles to take the duty of their perisht comrades, but Nature here as elsewhere will provide a new protection where the old is destroyed. Hence a hopelessly damaged, threatening, infected lymphatic gland extirpated is a good riddance, and no good surgeon, in either Germany, the United States or elsewhere, should hesitate a moment if he can extirpate the structure totally.

The occurrence of swelling of the lymph tracts and pseudo-elephantiasis is, perhaps, an occasional sequence of the removal of axillary glands—never of cervical—but it must be very rare that it does not get well in a few months, and it cannot well follow any but very extensive resection for cancers or lymphadenoma, either of them eventually fatal if undisturbed.

The difficulties of the operation in competent hands are not usually considerable and are never insurmountable; tho frequently it may not be feasible to extirpate the capsule entirely. With regard to the dissemination of disease, it happens here no more frequently than with sarcoma and carcinoma. Ask the genito-urinary surgeon how he treats inflamed chancroidal buboes and ascertain how little he fears dissemination! The operation done hastily with forcible enucleation and detachment may at times press the contents of the still intact gland into the proximal ducts, but careful and deliberate dissection and separation will not tend to disseminate the virus.

Thus the reasons offered by the objections to radical operations lie with force only against unnecessary ones.

We all have seen that the multiple lymphoma, where from a dozen to hundreds of glands are to be found, is the manifestation of a constitutional infection already beyond the aid of the glands, and hence to be benefited by surgery only when the glands themselves are a source of great distress from their size and numbers pressing on the structures. Suppuration is rare in this form. This is often the early manifestation of lymphadenoma.

The single, hard-growing and non-suppurating gland indicates the partial effort to restrain an invading poison. It may enlarge gradually or suppurate later, but often it remains stationary without pain or suppuration, and only demands surgical intervention when, by pressure from increasing size or from disintegration, it becomes a menace.

The inflamed single gland, or perhaps group of two or three glands, which appears often in seeming health in childhood and early adolescence, with redness and some tenderness, and even at times painful, and which in a few weeks shows fluctuation from circumglandular suppuration, is, nine times out of ten, hopelessly damaged, and will, if not removed, gradually soften and be got rid of after weeks or months, or maybe years, of discharge. In their later stage, these glands constitute the fourth form in which we see this troublesome affection.

Why such a condition should be temporized with, why it should be washt out with peroxide of hygroden, or poulticed, or bandaged up with salves, is not a question to be askt of scientific surgery, nor is a curetment to be substituted for an early removal, as complete as is possible in the surroundings.

How, then, shall these conditions be treated? Medical and expectant methods apply to the non-suppurating and non-progressive states, until, either because of the discomfort or for esthetic reasons, surgery is invoked. This treatment, besides the ordinary constitutional measures, may include the administration of mercury as well as of potassium iodide, both highly recommended by Schleich. Local applications of moderately stimulating ointments or paints serve a moral as well as a physiological purpose. The internal administration of iodine and hydriodic acid are among the valuable special agents. Warmth and protection are of great value. Iodoform injections into the gland and circumglandular structure are advocated by Hammerschlag. This plan of treatment may be safely continued until caseation or suppuration ensues. When this occurs, the gland is hopelessly damaged, and, besides, it is a source of infection. Under such circumstances shall it be excised, with or without curetment, enucleated or extirpated? Incision gives a tardy, incomplete recovery, a long treatment with constant dressing and an ugly cicatrix; Curetment aids in a prompter repair, but the convalescence is still a tedious one and some of the glands come away with suppuration. Enucleation, appropriate for the non-softened glands, is to be substituted after suppuration for complete extirpation, only when the latter cannot be completed. In all these steps I believe the danger of dissemination is less in complete extirpation.

True, it is not always possible to resect all the capsule, and an attempted extirpation may result in a final curetment, but, commonly, care and patience will enable the surgeon to remove all the glands, close up the wound with a small drain and promptly restore the patient to health. Usually, after this operation the general health will astonishingly improve and the patient will take on flesh. Recurrence, when it is observed, is due not usually to dissemination, but to the original cause, which, when possible, should be removed prior to any other treatment.

I conclude, then, that—

1. The cause of tuberculous adenitis of the cervical region is almost always local, and takes place thru the buccal cavity.
2. The glandular manifestation, when it progresses, and especially when it is followed by suppuration, indicates a damaged and usually useless, often dangerous, gland.
3. The removal of such a gland in toto and promptly is neither difficult nor dangerous, and is the treatment indicated.
4. Nature will probably provide a new and equally perfect protection in the stead of the one that is lost.
5. Multiple enlarged glands indicate a constitutional tendency which will not be benefited by removal, except when local discomforts and dangers indicate it.
6. Small groups or single slowly growing glands are subject to the same indication.

## PREVENTIVE OPERATION IN ACUTE INFLAMMATION OF THE APPENDIX.

BY MANSELL MOULLIN, F. R. C. S., LONDON, ENG.
Surgeon and Lecturer on Surgery at the London Hospital.

The treatment of inflammation of the appendix is nearly always regarded from a strictly medical point of view. Surgery is not considered to have a locus standi until a condition has arisen from which it is not likely that the patient will recover unaided. Except in one limited class of cases—that in which recurrence has already taken place once or more than once (for even one recurrence is not thought by every surgeon even in America to be sufficient to warrant operation)—the advisability of what may be called preventive operation is not recognised. Events are to be waited for, not anticipated. In the old days of abdominal surgery this doubtless was wise, and perhaps more than wise. But now that abdominal exploration is a perfectly safe proceeding (when performed under suitable conditions) it becomes a question whether the evil traditions, which in the minds of some still cling

around this branch of surgery, are not hampering progress, and preventing the adoption of the principle that, when there is a grave possible danger ahead, and there are no other means of finding out how matters stand, it is wiser to see and to make certain, if this can be done without undue risk, than to trust to chance.

Inflammation of the appendix is sometimes distinguisht as catarrhal and infective. The distinction may hold good in some cases for a little while; but it is not one that can be maintained. Leaving upon one side cases of specific inflammation, such as those which are caused by tubercle bacilli and other specific organisms, every case of inflammation of the appendix, even if it is catarrhal at the onset, becomes infective before many hours have past. The interior of an appendix always contains septic organisms. The epithelium is the protecting barrier. In catarrhal inflammation the superficial layers are always injured and may be destroyed. The protection disappears at once, and then there is nothing left to prevent invasion of the wall. Only when all symptoms subside in the course of a few hours, and leave no ill effect, can inflammation of the appendix be regarded as catarrhal.

I have met with a few cases which will answer to this description. On several occasions I have removed an appendix for attacks of pain, of short duration, but recurring so frequently that the patient was practically disabled, without being able to find evidence that the wall was infected. In one of these the cause was an impacted grape-stone; and the condition might have been considered to be merely appendicular colic had there not been congestion and other evidence of slight inflammation of the lining membrane. But these cases are unusual. In the majority, even if the symptoms have been of the mildest character and briefest duration, microscopic examination shows that septic organisms have penetrated the epithelial layer, and invaded the lymphatic interspaces, which surround the tubular glands. In all but the most trivial, the mucous and the submucous layers are invaded as well, and in a very large proportion the whole thickness of the wall, including the serous coat, is involved almost from the first.

The effect depends partly upon the power of resistance possest by the tissues, partly upon the virulence and number or the organisms, and partly upon the extent to which they are ass'sted by other agencies, such as concretions and stricture, themselves the result in almost every case of previous attacks.

The lymph which is poured out may become organised, leaving the appendix hard and rigid, or divided by strictures, or tied down and distorted by adhesions. The mucous membrane may be ulcerated, or the whole thickness of the wall, and even the whole appendix, may become gangrenous. Suppuration may occur in the interior of the appendix, or in the thickness of the wall, or outside it, leading to diffuse or circumscribed suppurative peritonitis. The organisms may spread along the lacteals into the mesentery and cause septic lymphangitis and peritonitis, without any visible breach of surface; or they may invade the radicles of the portal vein and set up fatal pyemia. It is only in comparatively slight cases that resolution can be perfect, that the whole of the exudation can be absorbed, and the appendix completely regain its shape, size, flexibility, and freedom of movement, without a trace of constriction or induration to show what has taken place.

Of these consequences, some, such as portal pyemia, diffuse septic lymphangitis, and general suppurative peritonitis, are invariably fatal. I am aware that in a few instances early operation has saved a patient's life after diffuse septic peritonitis has begun; but in very few, if any, of these has the peritonitis been really general; and the number even of these is very small in proportion to the number of those who die. Preventive operation—operation before these complications have set in—alone can save these patients' lives.

Another of these consequences, one fortunately which is much less fatal, tho still attended by a high rate of mortality, is appendicular abscess—a complication which occurs in a very much larger proportion of cases than is usually believed. I have often been surprised, in operating upon recurrent cases, during a quiet interval, to find a collection of half dried-up pus in the neighbourhood of the appendix, altho the symptoms had never been acute or the fever high. I have known this even after a single attack, and that one of so mild a description that it was for some time an open question whether the appendix was involved at all. And there can be no doubt that in many of those cases in which the temperature remains high for several days, and then falls suddenly with a feeling of intense relief, the immediate cause is an abscess which bursts into some neighbouring portion of the intestine. Sometimes these collections of pus are from the first adherent to the anterior abdominal wall, so that the patient runs but little more risk than that which is inherent on the presence of a deeply seated fetid abscess. But not infrequently they lie enclosed on one side, or even on all sides, merely by coils of intestine adherent to each other; and then there is always imminent danger of rupture, and of one of the most fatal forms of septic peritonitis. These cases, like those comprised in the former group, every one admits require operation, and the earlier the operation is performed the better. Delay merely serves to increase the size of the abscess, and to give it an additional chance of bursting into the cavity of the peritoneum.

Now, it is admitted that at the onset of an attack of acute inflammation of the appendix, when there is a rapid pulse and the patient is suffering from severe pain, it is impossible to say what is going to follow, whether it will be gangrene of the appendix, or ulceration, or perforation, or acute septic lymphangitis, or portal pyemia, or merely circumscribed suppuration. In some of these a preventive operation is the only hope. In the others an operation must be performed at last. It is perfectly fair, therefore, to ask which alternative, in the present certainty of abdominal surgery, will give the patient the better chance of life?—To make a small exploratory incision in the right iliac fossa, before suppuration or gangrene has set in, and deal with the appendix according to its condition? or to wait, in the hope that the consequences which are inevitably fatal will not occur, and that suppuration, if it does set in, will be circumscribed and not diffuse?—to anticipate events, or to wait for them, without the smallest chance of being able to control the issue?

But there are other consequences which must also be taken into consideration. Suppuration may never occur at all. The acute inflammation may subside, and the patient be left with a hard tender mass in the iliac fossa, which always hurts him when he uses his right leg freely, and never allows him to forget the attack he has gone thru. Or the attack may subside completely, and the patient imagine he has entirely recovered, until suddenly, a few weeks or months later, all the old symptoms return again with sometimes a greater, sometimes a less, degree of intensity, but always with the risk of something worse. In both of these cases it is recognised that operation is required, in the one to free the patient from an appendix in a state of chronic inflammation; in the other, to prevent a recurrent attack. In both alike, the operation is attended with a very high degree of success. Preventive operation in the course of the first few days of the attack could not be more successful. But is there any reason to think, supposing these cases were operated upon as a preventive measure, because of the risk of gangrene, at a time when it is impossible to say that gangrene or some other consequence, no less serious to life, will not occur, that the result would be in any way less successful?

It comes to this, then, that if all the cases of inflamed appendix, which, under the present method of treatment, come to operation at last, were operated upon at once, say before thirty-six hours have elapst, some lives which are lost now would be saved; and there is no reason to think that any of the patients who are saved now by operation would be exposed to additional risk, while certainly the duration of their illness would be materially curtailed, and the chance of grave accidents setting in considerably lessened.

But it is always urged that there is a large, a very much larger number of cases which never require operation at all, and that if early operation became the rule, to any extent, many of these patients would be operated upon unnecessarily. No one can deplore unnecessary operations more than I do, and I am quite willing to admit that it is not possible as yet to assign their proper pathological value to the various clinical symptoms present in this disease. There is nothing which can tell us that ulceration is beginning, or that gangrene is at hand. In many cases we cannot even tell whether pus is present or not. But I am sure that in a very large proportion of cases, if not in all, it is possible, at the end of thirty-six hours, to form a tolerably accurate estimate as to whether the attack will be a grave one or not, remembering always that no case is free from the risk of accident until the patient has thoroly recovered.

Putting aside those cases in which the symptoms are simply those of sudden intestinal perforation (for about these there is no doubt), the key is to be found, not so much in the intensity of the symptoms at any given moment, as in the way in which they either advance or recede. We have to deal with an acute infective inflammation of a badly-nourisht portion of the intestine, lying free in the peritoneal cavity. If the symptoms begin mildly and grow worse, or if they begin with severity and do not show signs of definite improvement within thirty-six hours, or if at any time they break out suddenly with great intensity in the course of what appears to be a mild attack, it is reasonable to assume that the septic organisms, if they have not already reacht the serous surface in sufficient number to excite suppuration, are at least not far from it; and that, if they have not already compromised the vitality of the intestinal wall, they will at any rate cause so profuse an exudation that complete resolution, a resolution so perfect that it does not leave a trace of induration or adhesion behind, is most unlikely.

Great stress is laid by some on the frequency with which

what are rightly regarded as the cardinal symptoms of inflammation of the appendix fail to appear. It is said that because of this it is impossible to form an opinion as to the future of the case in its early stages. But with the sole exception of increasing rapidity of the pulse rate (which I believe to be invariable in grave cases), the absence of one or more of the other symtoms is not of the least importance. We must judge from those that are present. I have known pain and tenderness to be entirely wanting in one of the most acute cases I have ever seen, but there was no doubt. Temperature may be normal, and the whole appendix on the verge of gangrene, but there are always other signs. If, while the pulse rate continues to increase in rapidity, the pain grows more severe, or the abdomen becomes distended, or the tenderness becomes greater, or the dullness increases in extent, or the vomiting becomes more frequent, an exploratory operation should be performed while there is yet time, and the source of the mischief found and examined. I have never met with such a case myself, but I should not hesitate to do the same on the increase in the pulse rate alone, even tho none of the other symptoms pointed to any grave degree of severity. It may not be possible to say what will happen, but there can be little doubt but that something serious will, and that in a few hours' time it may be too late.

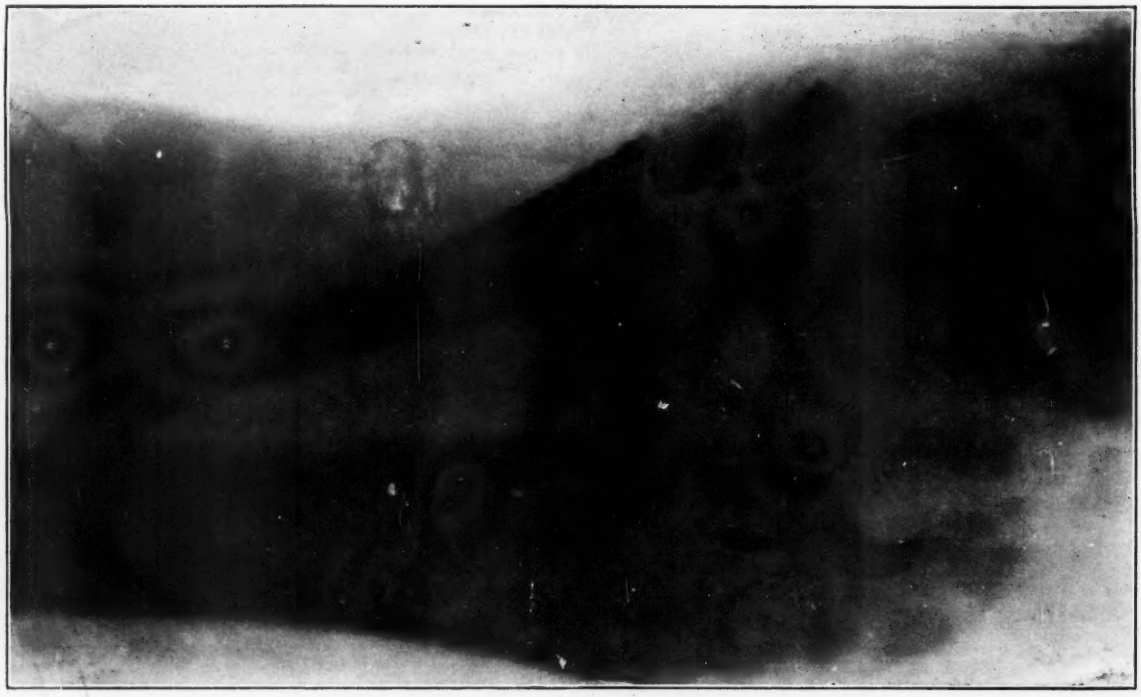
Preventive operation must, however, really be preventive in the narrow sense of the term, and must not be confused with what is called early operation. Gangrene of the whole appendix may make its appearance within twenty-four hours of the time when the symptoms were first noticed. (I do not say within twenty-four hours of the beginning of the attack, for I believe there are earlier symptoms in these cases, only they are either not noticed or not remembered.) Suppuration is not uncommon at the end of forty-eight hours. An operation, therefore, to be preventive must be performed before this. As regards the actual time, each case may be judged upon its merits; it may not be possible to wait thirty-six hours, or it may not be too late after forty-eight. But whenever it is performed it must not be confused with operation upon the fourth or fifth day (the time when so-called "early operations" are usually performed), when the abdomen is already distended, and the intestine paralysed. By that time more or less general peritonitis has already set in; the time for preventive measures has past by; and such a proceeding as an exploratory incision in the right iliac fossa will no longer satisfy the requirements of the case. These are the cases which cause the mortality to be so high, and they are the ones which could be saved by the timely adoption of a simple and almost harmless exploration.

## CLINICAL CASES IN SURGERY ILLUSTRATED BY RADIOGRAPHS AND PHOTOGRAPHS OF A COMPOUND POTT'S FRACTURE COMPLICATED WITH OSTEOMYELITIS AND NECROSIS; A COMPOUND FRACTURE OF CLAVICLE AND TUBERCULAR CERVICAL GLANDS; MAMMARY ADENOMA AND APPENDECTOMY.

BY HARLAN TRASK, M. D. APPLETON, WIS.

The first case I wish to report is one of compound Pott's fracture, resulting in extreme osteomyelitis and necrosis; operation and cure.

Mrs. B——, resident of Appleton, Wis., age 36 years; mother of three children, came into my hands ten weeks after an injury caused by the kick of a horse; at the time of my examination there was a compound Pott's fracture as well as an extensive osteomyelitis and necrosis of the tibia, the fibula and the tarsus which had developt. The ankle and leg were swollen; the foot dislocated; the transverse fracture of the lower fragment of the fibula was firmly united to the tibia, as shown in the accompanying radiograph. An operation being decided upon, I made an incision two and a half inches in length on either side of the leg and ankle, removed the lower fragment of the fibula which was nearly all necrosed together with a large portion of the head of the tibia and the astragalus. The foot was put in as nearly correct position as possible and a large rubber drainage tube inserted thru the opening; a Bavarian plaster of Paris splint was applied and the foot immobilized. The patient was over six months pregnant and in an extremely anemic and nervous condition; there seemed to be but a small chance to save her foot and I made the attempt to do so much against the wishes of the other physicians in attendance. The wound is healing nicely and the bone filling in rapidly; it has now been four weeks since the operation; there has been a moderate amount of suppuration; no elevation of temperature and the patient is now making an uninterrupted recovery with a somewhat shortened and stiff ankle.



Radiograph of Mrs. B., showing fracture, dislocation and necrosis.

### COMPOUND FRACTURE OF CLAVICLE TREATED BY WIRING.

Miss H——, resident of Appleton, Wis., a dressmaker, age 20 years, while on the street July 4, 1900, sustained a compound fracture of the clavicle from an explosion of a large giant fire-cracker. The attending physicians attempted to put the clavicle in proper

position by means of Saye's dressing, which attempt was a failure in this case. The young lady suffered great pain, in fact so great she could not endure it. I was therefore called to the case. On examination found there was a fracture at both the middle and inner third of the clavicle. I enlarged the wound already made; drilled and sutured the bone into its proper position; removed all the foreign matter possible and applied drainage. The only dressing used to keep the clavicle in position was a simple arm sling.

There was a moderate amount of suppuration; but the patient has made a fine recovery—there being no deformity of the shoulder.

### POTT'S FRACTURE CURED WITH AMBULATORY TREATMENT.

Frank S——, a resident of Appleton, Wis., age 25 years. While wrestling he fell, turning his foot outward; the fibula was broken one and a half inches above the external maleolus; the point of the internal maleolus was torn off; the outer portion of the articular surface of the tibia was broken and the foot dislocated. After the swelling had subsided a plaster of Paris splint was applied which was removed in five weeks and the patient has made

Photograph of foot of Mrs. B. ten weeks after injury, showing condition of soft parts.

a perfect recovery. This patient was allowed to walk with the aid of a crutch the fifth day after injury.

### REMOVAL OF TUBERCULAR CERVICAL GLANDS.

Miss H——, of New London, Wis., aged 25 years, was referred to me by Dr. Brietzman of that place. Her family history is good and presents, contrary to the history frequently obtainable in such cases, no tubercular disease so far as known in her immed-

Another photograph of foot of Mrs. B., showing condition on admission to hospital for treatment of Pott's fracture.

iate family. She has been somewhat irregular in her menstrution; is fairly well nourisht and appears in good health aside from the masses observed in her neck. These small nodes appeared in the left side of her neck; they were at first the size of a bean and freely moveable; for a long time they presented periods of regression and advance, sometimes increasing in size and envolving new glands, then decreasing somewhat but not disappearing entirely. Again for months at a time there was little change. At the present time nearly all the lymph glands of the neck were more or less involved. Some of the smaller of these glands are moveable and the size of a large bean, but many as big as a large walnut.

There can be no question in this case of the diagnosis of tubercular adenitis. In such cases if an operation is undertaken I believe it should be thoro and extensive; partial operations are questionable and very unsatisfactory. Observation also shows that relapses are infrequent in proportion to the thoroness of the removal.

Indiscriminate operations by inefficient operators unfamiliar with the anatomy of the neck are of questionable utility.

I opened the subcervical region in this patient from the mastoid process to the outer third of the clavicle and removed the outer set of cervical glands; also three small growths from under the clavicle. Recovery has followed rapidly, with moderate suppuration.

### MAMMARY ADENOMA.

Miss F——, of Seymour, Wis., age 18 years, was brought to me for examination by Dr. Holtze of Seymour, Wis. Her previous health was good and her present health reasonably good except a large tumor of the right breast. The tumor measured 24 inches in circumference on its external surface; it was regular, smooth and firm to touch; its border somewhat irregular and nodular. Operation was advised, and accepted.

Accordingly the patient was anesthetized and the tumor removed en-masse. The tumor was easily separated from the surrounding tissues and everything at that point down to the ribs dissected. It was necessary to put in deep sutures as well as superficial sutures. The wound healed by first intention. Recovery is complete.

Examination of the tumor shows no trace of malignancy—it is a pure mammary adenoma.

### APPENDECOMY.

Harry W——, a resident of Oshkosh, Wis., age 35 years, was referred to me by Dr. Hittner, of Seymour, Wis. Occupation engineer; has been subject to recurring attacks of appendicitis for the past year. The patient being anesthetized, an incision of one and a half inches was made over the region of the appendix; the abdominal wall was opened by Mr. Burney's method of blunt dissection, the appendix removed, the stump inverted with a puckering string suture and the wound closed by three rows of sutures. This patient got out the eighth day and returned home on the fourteenth day, resuming his occupation.

Such cases are ideal ones for operation. Recovery is practically sure. If all doctors (and patients) would accept the dictum that all cases of recurrent appendicitis should be operated on in the interval between attacks, many valuable lives might be saved.

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A peculiar case of abscess of the orbit was reported to the Philadelphia College of Physicians Nov. 20 by Dr. D. D. Risley. The patient was a boy who had had an abscess of the orbit which had proved to be associated with anopening into the ethmoidal cells (thus furnishing another illustration of the fact that suppurative disease of the orbit is usually associated with disease of one or more of the contiguous sinuses.) The patient applied for treatment at the Wills Eye Hospital two days after a blow upon the nasal aspect of the upper eyelid by a piece of flying metal. The upper lip was edematous, the conjunctiva was cnemotic, there was markt exophthalmia, and the globe was almost fixt, only slight rotation inward remaining. Under cold compresses the pain promptly ceast, and the edema of the lids and the exophthalmia disappeared, leaving only a point of tenderness at the upper and inner angle of the orbit. On the fifth day fluctuation was present, and a deep incision into the orbit was followed by a profuse discharge of pus. A probe past without resistance deeply into the orbit, showed a large area of denuded bone. The cavity was injected with peroxide of hydrogen solution and subsequently cleansed twice daily, with saturated solution of boric acid. The solution past freely into the nostril. Suppuration practically disappeared after the first treatment, and the wound healed without reaction or further suppuration. Mobility of the ball at the end of two weeks was completely restored and no tenderness remained. Dr. Risley found it difficult to explain the presence of the denuded bone, the opening into the ethmoidal cells, and the orbital suppuration following so speedily after the slight injury the boy had received. There was no discoverable evidence in the nose of the ethmoidal disease having existed prior to the accident; but it is quite probable that it existed.

## TUBERCULOSIS OF THE SPINE AND ITS TREATMENT.

BY A. M. PHELPS, A. M., M. D., NEW YORK CITY.

Professor of Orthopedic Surgery in the New York Post-Graduate Medical School, Surgeon to the City Hospital of New York.

I wish to say to you at the beginning of my lecture that it is not possible for me to say anything particularly striking or new upon the subject of the treatment of Pott's disease, as everything that could be said has been said years ago by Dr. Lewis A. Sayre; you will understand, therefore, that my aim is merely to call attention more particularly to methods rather than to principles of treatment. In both this country and the old world we have two schools—one which believes that lateral curvature of the spine should be treated by gymnastics exclusively, and the other school which believes that bracing and gymnastics are both required. There is still another class of surgeons who believe that bracing alone is the proper treatment. Personally, I am of the opinion that mechanical and gymnastic treatment should be combined.

In regard to the nature of Pott's disease of the spine, I believe there is no difference of opinion among the advanced thinkers in the surgical world, for surgeons look upon Pott's disease of the spine, not as a deformity, but a true tuberculous or pyogenic process, due to infection. This disease is treated by extension to the point of comfort with fixation, and prompt and judicious surgical interference when required. The deformity is incidental to the destruction of bone by the disease.

How to apply these principles of treatment I will discuss tonight because upon this point the profession is divided. The etiology of Pott's disease is the same as that of all other tuberculous or purulent joint or bone diseases. In the past we have jumbled together under the name of "Pott's disease" several conditions. But we now know that Pott described tuberculosis of the spine. He called it "caries," because in his day the cause of caries had not been discovered. Caries is nothing more or less than tuberculosis of bone. This process alone should be given the name of Pott's—purulent disease should be classified as osteomyelitis, and other diseases of the bone and cartilaginous structures of the spine should receive their appropriate name dependent upon their etiology and pathology; e. g., actinomycosis, rheumatoid arthritis, "typhoid spine," and those conditions which either result in destruction or ankylosis, dependent upon central nerve lesions.

Gross taught that Pott's disease and chronic diseases of joints were due to a "constitutional taint." There never was a greater mistake taught—Sayre taught more than forty years ago that the disease was local and produced by an injury, as a rule. This fact is now proven. The discovery of the bacillus of tuberculosis and the researches of Volkmann and Koenig presented to us another and a perfect explanation of these chronic diseases of joints and spine. They found that tuberculosus inoculation produced them all—given the fact that trauma produces inflammatory action resulting in repair from cell activity, and a large area of embryonic tissue is produced at the point of injury, that this area of normal inflammation is a good soil for the inoculation and growth of germ life; that germ life will not grow in the body excepting in such a soil previously prepared for it. We can now understand how trauma, embolism or any irritant which produces a local inflammatory process determines the localization of germ life, thereby producing a local tuberculosis of spine or joint. It occurs more frequently in spine or joint, because these structures are more liable to injury. The germ often is floating in the circulation of apparently healthy individuals, and only requires a soil such as is described to localize it. In other instances, a lymphatic gland rich in cells has become inoculated thru the lymphatics from the mucous membrane; this gland breaks down and ulceration thru its coats takes place, the contents discharging into a vein. The blood now being contaminated with tuberculous germ life, from a local reservoir, will carry infection to any local soil fit for its reception and growth. In the absence of such local lesion the germs are eliminated thru the kidneys.

We see then that these cases of Pott's disease of the spine are always preceded by a lesion in the bony structures or soft parts, which lesion is either produced by trauma, embolism or some other pathological cause, producing an area of inflammation into which inoculation takes place from the germs which are floating in the circulation. The condition is purely local, and has nothing whatever to do with a "constitutional taint." The reason why one child is affected with local tuberculosis of the spine and another is not is to be found in the condition of the child. That condition is known as "struma." Struma is not a disease; it is a condition, and I hope that I will never see again printed the terms "strumous joints" or "strumous spine." Struma probably exists in the protoplasm of the ultimate cell, and measures the resistance of that protoplasm to the attack of germ life. "Scrofula" we now know to be attenuated tuberculosis, so that the expressions "scrofulous and strumous spine" and "scrofulous and strumous joints" have been relegated to the obscurity which they so justly deserve. General tuberculosis may take place from Pott's disease as the result of multiple inoculations in different portions of the body.

To produce a case of Pott's disease there must be (1) a strumous condition of the individual; and (2)) a lesion producing inflammatory action. Inflammatory action in itself is not disease, but a normal effort at repair. With this effort at repair, a suitable soil is afforded for the development of tuberculosis. In a strumous child, the soil is suitable for the growth of the bacillus, and the result is tuberculous disease. The phagocytes of the non-strumous child destroy the bacilli before they become inoculated. The moment the bacilli of tuberculosis are inoculated into this inflammatory area in a strumous child, the tuberculous process begins. The germs rapidly grow in this new inflammatory material, and the disease steadily progresses until eventually the entire vertebra is destroyed, and then the deformity of the back takes place. The amount of deformity depends upon bony destruction. There are, as I have already stated, affections which produce pathological conditions similar to Pott's disease of the spine. I present a spinal column showing ankylosis from some other cause, probably rheumatism or some disease following in the wake of some one of the eruptive fevers; and another specimen showing growths of bone upon the vertebrae. The pain which this person probably suffered might very easily have been mistaken for Pott's disease. Here are other specimens showing abundant growth of bone, but this is not usually found in true Pott's disease. It is quite probable that some of them are instances of disease of the spine dependent upon lesions of the nerve centers.

I present these specimens, Figs. 1, 2, 3, illustrating conditions found in true Pott's disease. Fig. 1 represents great posterior

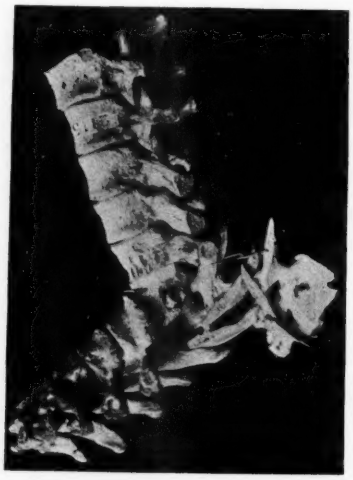


Fig. 1.

deformity with destruction of the bodies of several vertebrae. The section shows that even with the extreme bending of the spinal column the canal is patent and the cord not prest upon by the bones. Fig. 2 (a sawn section) shows the entire absence of nearly two vertebrae, with the enlargement of the spinal canal from pressure making room for the spinal cord. There probably was temporary paralysis in this case from pressure. Fig. 3 shows a destruction of the vertebrae and pressure upon the cord by the projecting bone, causing total and permanent paralysis.

The specimens are interesting on account of the bearing they have on the prognosis in a given case. Fig. 3 would be classified as a hopelessly paralyzed case, while Fig. 1 would not be. Fig. 2, probably fatal on account of the invasion of the spinal canal by the disease producing meningo-myelitis.

Lateral rotary curvature of the spine differs from Pott's disease in every respect. The deformity of lateral rotary curva-

ture is caused by absorption of bone from pressure and not from disease. Any condition which allows or causes the spine to be

Fig. 3.

bent laterally will sooner or later produce absorption of one side of the body of the vertebra, which will necessarily disturb the perpendicular equilibrium of the spinal column, by shortening the bony wall on that side of the spine. This produces a permanent curve due to absorption from pressure. As absorption of the vertebrae goes on, the curve increases and rotation takes always in the direction of curve. This throws the center of gravity outside of the side of the vertebral column in the direction of curve, a position of great discomfort to the patient, on account of the head and shoulders hanging, as it were, over the curve. Constant effort on the part of the patient both in the erect and recumbent positions to preserve the center of gravity for the head and shoulders results in the formation of compensatory curves below and above the primary one, which, to a certain extent, restores the equilibrium of the trunk. Thus we see why nearly all cases of lateral rotary curvature are double. The formation of the compensatory curves, when they are perfect or equal to the original, constitutes a curve, and this, in my opinion, is the only way that a case of lateral curvature is ever benefited or cured. The bone change in the original curve will remain in spite of every effort ever devised. But the curing of a case by assisting the formation of compensatory curves is a "consummation devoutly to be wisht," because that individual has a spinal column as useful as a normal one.

I present a specimen of lateral curvature high up in the cervical region. I cannot account for this deformity, without any evidence of disease whatever, excepting by muscular contraction. As rotation takes place, it is in the direction of the curve, and the ribs on the side of the curvature are overlapt. Here is still another specimen showing the curvature of the spine occurring in the lumbar region. Why it should occur, I do not know; but the fact is evidently beyond dispute. Here is another spinal column taken from a patient whom I treated. It shows a large amount of rotation, but slight curve. This, and another specimen in the possession of Mr. Adams, I believe to be the only ones of the kind extant. Here are the photographs of fetuses at the fifth, sixth, seventh and ninth months. They show the spine to be absolutely straight up to the time of birth. Just as soon as the child begins to run and use the psoas muscles they pull the lumbar spine forward. The child makes an effort to counteract this, and finally, as a result of the action of these opposing forces, the normal spine contains four curves. If, for any reason, the muscles act unequally upon the spine, rotation is readily produced, and when rotation occurs, as a rule, lateral curvature quickly follows, or vice versa. The four normal curves are useful in preventing undue concussion. If the center of gravity falls within each curve, no harm results.

The pathological conditions found in lateral curvature are always the result of absorption. The rotation necessarily takes place on account of the anatomical construction of the spine. The effect of disturbing the equilibrium of the spinal column or other structures is markt and often dangerous. As the spine curves, the thorax becomes distorted, making pressure upon the thoracic viscera; the intercostal muscles and fibrous tissue become shortened and the ribs permanently overlap on the side of concavity; while on the opposite side, the ribs are widely separated. The ribs as they overlap become changed in shape; their curves are flattened and prest forward. All these points have an important bearing upon the treatment. As the primary curves and rotation increase more and more, the compensatory curves and rotation also increase; the patient telescopes together, and if the condition increases to a certain extent, the patient dies from pressure upon the thoracic and abdominal viscera, directly or indirectly. The increase of the curves is produced by the superincumbent weight during the erect position, while it is arrested during recumbency. As the bony curves increase, atrophy and destruction of the spinal muscles take place over the convex side of the curves, while the muscles and fibrous structures become permanently contracted and shortened on the concave side of each curve. The intercostal muscles on the side of concave curve become shortened and degenerated, permanently binding the distorted ribs together, while upon the side of convexity they become stretcht, attenuated and degenerated on account of the great divergence of the ribs. In the lumbar and cervical regions the same condition of the soft parts is present.

These are the cold facts in regard to pathological conditions which confront us, and our treatment must be shaped to meet these conditions—taking into consideration the etiology of a given case.

## THE CAUSES OF LATERAL ROTARY CURVATURE.

We are still in the dark as to many of its causes. We believe we know that (1) heredity, (2) paralysis of groups of muscles, (3) a short leg, (4) intrauterine causes, (5) bad position in sitting or standing of the rapidly growing child, (6) injuries to muscles at the time of birth which prevent their development, (7) twist of the pelvis producing rotation, (8) bad nourishment and bad hygienic surroundings, and (9) rachitis, are among the chief causes. Time will not permit my discussing the causes further.

## SYMPTOMS OF POTT'S DISEASE.

It is the duty of every practitioner to recognize Pott's disease of the spine at its very earliest inception. There are always symptoms present which cannot be mistaken. We know that in bone disease affecting the joints there is always spasm of the muscles and limit of motion, so that in all cases of Pott's disease of the spine there will be found limit of motion, which is due to a spasm of a muscle, and which produces the rigid spine. Then in children the pain is usually located anteriorly in the abdomen or thorax most frequently. Bending of the body forward usually produces pain; bending of the body backward relieves the pain. If the patient is able to walk, it will be observed that he walks with a very careful gait, and that in picking up objects he very seldom stoops forward, but rather crouches down. The pain is usually not referred to the point of disease. Sometimes pain in the back is present, but this is not constant. The reflexes are usually exaggerated. An examination of the back at this particularly early stage will reveal no deformity. If the case is watcht, deformity will very quickly appear, together with an exaggeration of the symptoms which have been already given. Sooner or later in nearly all of these cases paralysis will be present to a greater or less extent. This paralysis is usually due to an invasion of the meninges of the cord or the spinal cord. It is seldom due to the kyphos, as has been taught by some authors. If the case can be recognized thus early, it is usually very amenable to treatment, but unfortunately the case is treated often by the general practitioner until a markt kyphos is observed; either the case has been treated constitutionally, or the disease being recognized, the patient is put to bed. Cases so treated always go on from bad to worse as regards the kyphos. Or the good, old doctor may have treated the case for some "abdominal trouble"—usually "worms"—or for some affection of the heart or lungs. Hence, as a rule, when these cases drift into the hands of the orthopedic surgeon they have already gone on to a hopeless deformity. Early diagnosis in these cases is, therefore, of the utmost importance, and the very moment the disease is detected mechanical treatment should be commenced. These neglected cases which have been treated in bed or in chairs, or have been treated constitutionally with the belief that the disease is a local manifestation of the general tuberculosis, are the most lamentable of all.

## PROGNOSIS.

Regarding the prognosis, it may be said that so far as the present condition is concerned, if it is one of tuberculosis, it can usually be cured; but inasmuch as the child is a strumous child, and is liable to subsequent injury, and there may be possibly somewhere in the system a tubercular gland, softening and emptying its contents into the circulation, the instant the child receives another injury of some joint it will become infected, or the child may develop tubercular meningitis or tuberculosis of the lungs. This is the reason why so few cases of tubercular disease of the spine live to old age. That we can cure them temporarily is an undoubted fact; that we can cure them without increast deformity is also a fact. If we could change the protoplasm in the ultimate cell of the child in which is located the

vital principle, and the resisting power to the attack of germ-life, then we could permanently cure these cases of tubercular disease of the spine.

As time goes on after the child has been temporarily cured, if a change in the constitution of the child takes place, and it is no longer a strumous child, that case is cured permanently. There is hardly a case of tubercular disease of the spine that does not temporarily recover if properly treated. Quite a large per cent of these cases have paralysis, sometimes during the course of the disease, which we shall consider later.

The prognosis in cases of osteomyelitis is exceedingly grave. The rapid formation of abscesses, the absorption of purulent material and the destruction of vertebra after vertebra makes these cases very grave. However, the cases of osteomyelitis in which the disease is confined to one or two bodies of the vertebra usually recover, and recover permanently. They go thru life well. Inoculation with them was an accident, and had nothing to do with the constitution of the child.

## LATERAL CURVATURE.

This trouble is usually unattended with pain. The spine is flexible. Absence of rigidity due to spasm of muscle, with a perceptible lateral curve, and rotation are the chief characteristics. No pain on flexion demonstrates that Pott's disease is absent. One shoulder is always prominent or drooping. Lateral deviation is seen in a very large per cent of Pott's disease, and such cases should be at once recognized; their points in diagnosis will make the detection of such cases certain.

## TREATMENT OF POTT'S DISEASE.

We will next consider that which is of most interest to you as practitioners: The subject of treatment. There are but two chief features applicable to the prevention of further deformity and to the arrest of the local disease:

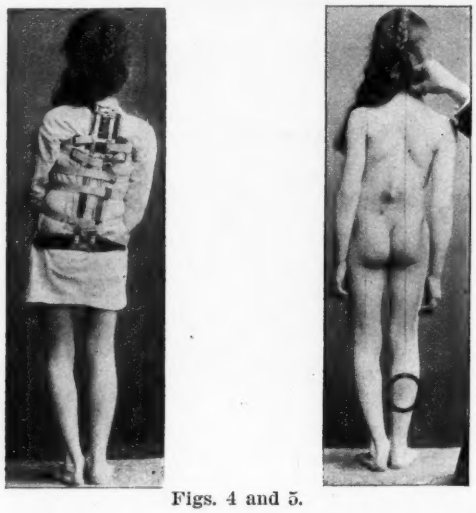
The principles are extension to relieve pressure, and fixation to prevent the trauma of motion.

Extension to the point of comfort and fixation with a dressing comfortable to be worn and impossible for the parent to remove.

By extension and fixation is meant extension and fixation all the time, both day and night, in bed and out of bed. My observation has been that no steel brace ever made can or has ever fulfilled these requirements. During the centuries past these principles have been taught and every conceivable brace the ingenuity of man could invent has been used, and let me say right here that no important improvement has been made this century upon the complicated bracing of the past three hundred years until the time of the invention of the plaster-of-Paris corset. This markt an era in spinal bracing, and it and other supports made on the same principle have and will rapidly supplant the steel bracing of the past. In lateral curvature there can be only harm done with a steel brace, because they cannot be anchored at the pelvis to make proper lateral support; and then again, a narrow pad or bar is bound to excoriate from pressure and the patients will remove it; and who would blame them?

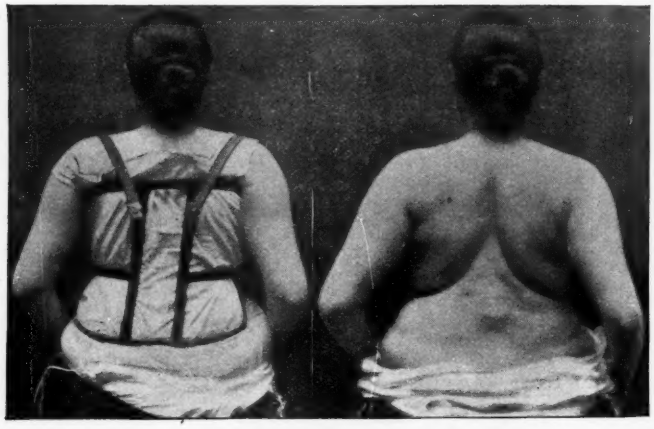
The same objection holds good in Pott's disease. The anterior posterior lever of Taylor cannot be worn constantly, and then in the slightest deviation of the spine it aggravates the deformity by twisting the spine upon its axis; hence the old statement that the "deformity usually increases at first when the brace is applied." What a statement of condemnation of steel braces! Apply a well-fitting plaster-of-Paris or aluminum corset and the deformity will not increase! A steel brace to treat Pott's disease is like the first locomotive, that required a man to open and shut the valves at the right time or things would not go or would "bust"—it requires a constant eye on it or things go wrong. The plaster-of-Paris or aluminum corset is like the perfected mogul engine that runs without care after the throttle is opened.

The application of a steel brace of any make in Pott's disease of the spine where there is the least lateral deviation is a practice to be condemned, because such cases invariably increase in deformity, on account of the mechanical conditions. Destruction of bone will certainly increase, whereas if suspension is applied and a properly fitting corset adjusted, no pressure is made at the point of disease, and the rotation will not increase. I hope to see the day when every form of steel brace, both in Pott's disease and lateral curvature, will be relegated to a justly merited obscurity.



Figs. 4 and 5.

Figures 4 and 5 represent a case of Pott's disease with lateral curve and a "Taylor" brace adjusted. A glance at the cut will



Figs. 6 and 7.

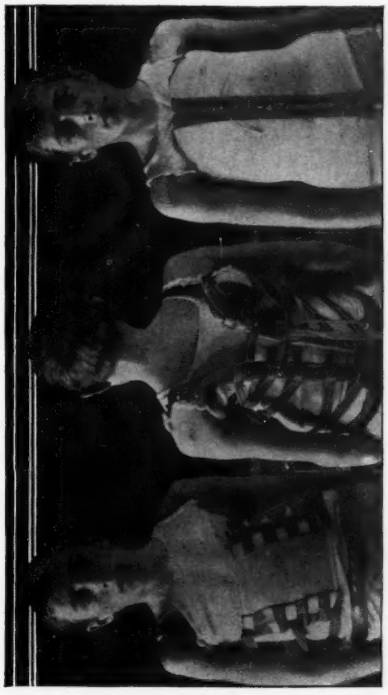
show the utter absurdity of such a brace. Figures 6 and 7 represent a case of Pott's disease treated with the "Knight's" brace, which is practically of very little use, because it in no way sup-

Fig. 8.

ports the spine. Figure 8 shows a little child with a brace ad-

justed to the hip and also to the spine, for a combination of the two diseases.

Figure 9 is the same brace. This brace is suitable because it is attacht to the hip brace, which gives it proper direction in the application of force.



Figs. 9 and 10.

Figure 10 represents another method of adjusting the hip brace to the plaster-of-Paris corset, with a strap at the upper end of the staff for making lateral traction.

Fig 11.

Figure 11 shows the plaster-of-Paris portable bed for treating Pott's disease of the spine. Under three years of age no brace can be adjusted to support the spine, because the hips are so small that no base of support can be obtained. Figure 12 represents a case of Pott's disease high up in the dorsal region with a jury mast properly adjusted. The jury mast should set back of the center of the head so as to make traction backwards, thereby

Fig. 12.

throwing the weight of the head upon the transverse and articular processes.

It may be interesting to the profession to glance at a brief sketch of some of the braces used during the past century and compare them with those we are using to-day.

## ANCIENT SPINAL BRACES.

Let us consider the mode of supporting the vertebral column by braces. For the purpose of giving you the facts regarding the history of spinal bracing, I will state some of the results of my travels in the different parts of the world, and among all sorts of museums and junk-shops. You will be perhaps surprised when I tell you that, aside from change of material, down to the present time we have hardly brought out a single new idea. In this country a spinal brace much in use is known as the "Taylor brace." It is supposed to have been invented by Dr. C. Fayette Taylor. It acts on the principle of antero-posterior leverage. I find away back in 1782, a picture of a brace invented by

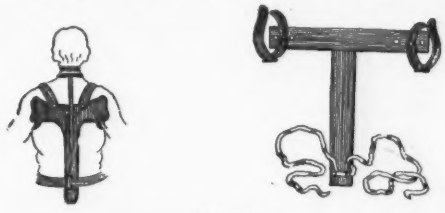


Fig. 13.

Bell (Figure 13), made of wood, and extending from the base of the skull down to the coccyx. It is in the shape of a cross, and buckles and straps confine the apparatus to the body at the pelvis and at the shoulders. It is nothing more or less than the antero-posterior support.

Fig. 14.

Figure 14 is another picture showing a somewhat similar brace with chin-piece for cervical Pott's. It has sliding crosspieces and closely resembles braces used in this city at the pres-

Figs. 15 and 16.

ent time in principle. It was made in 1700 by Heister. Figures 15 and 16 show another old brace, made in 1764 and 1767, by Levascher and Portal, with jury mast attacht, which I use to-day somewhat modified.

About three or four years ago I invented an aluminum corset, and I presumed that I was the first one who had advanced the underlying idea of this corset. Yet in an old book I have found a brace made of steel by Ambrose Pare, in 1579, which is practically the same thing. (See Figure 17.)

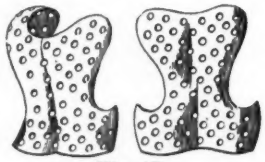
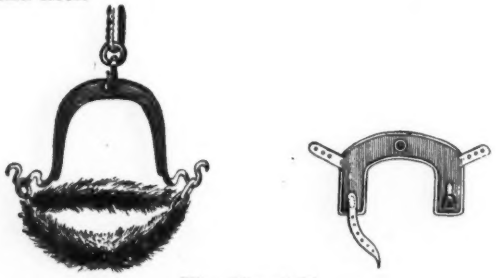


Fig. 17.

My distinguisht colleague, Dr. L. A. Sayre, invented the jury mast and he is entitled to the great credit of introducing this apparatus to the profession of America. Yet I have found a picture of an identical jury mast and corset, made in 1764 out of steel and cloth.



Figs 18 and 19.

Again, Figures 18 and 19 are pictures illustrating a suspension apparatus very similar in principle to the one now used by Dr. Sayre and others by Von Nuck, 1696, and Gilson, 1799.

I next show you a picture of a steel brace adjusted to a beautifully fitting corset, and with a jury mast which cannot be excelled at the present day. We cannot improve either on the instrument or on the mode of its application, as depicted here.

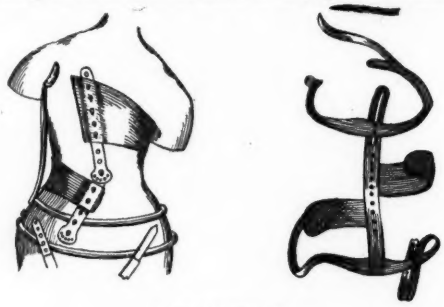
Fig. 20.

(Figure 20, Levascher and De la Croix, 1764 and 1725.)

Portal's brace, 1767, is an elaborate brace (shown in Figure 16), but the fatal objection to it, as to the others, is that the tilting of the pelvic band prevented much effect from the mechanical devices employed. It has, however, one point of great merit, a device for preventing or limiting this tilting of the pelvic band. A similar device is still used in the Hessing corset.

Fig. 21.

Figure 21 is another device with a lateral pad and a crutch under the arm, with the same idea of making pressure, and so straightening the lateral curvature of the spine. (Lonsdale, 1847.)



Figs. 22 and 23.

Figures 22 and 23 are pictures showing a simpler brace on the same principle, made in 1792.

Fig. 24.

Figure 24 is a picture of a brace in which the tilting of the pelvic band was to be prevented by an anchoring device passing down the leg. This would be a very good thing if the hip joint was ankylosed. It was devised by Lorinser in 1868.

After a century or more of this kind of treatment, it was discovered that this elaborate bracing had had no good effect on the spinal column; hence arose another class of orthopedists—who favored the use of "elastic tension" by means of various rubber

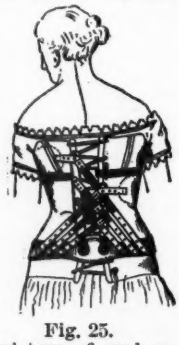
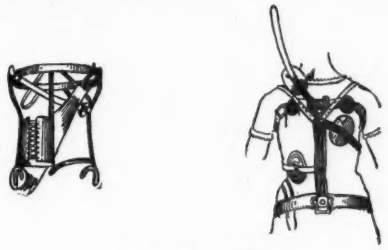


Fig. 25.

bands. Figure 25 is a picture of such a brace, designed by Duchene in 1861.

Mr. Barwell, of London, thought that by hitching on to the opposite hip and inserting a rubber band he could improve upon this treatment, but he did not.



Figs. 26 and 27.

Figures 26 and 27 show another brace, the idea of which was to pull the body against the brace, and so straighten the spine. Figure 28, also a frame for making pressure.

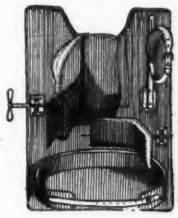


Fig. 28.

I have so far shown the "portative" appliances. A surgeon then came to the conclusion that the curve in the spine could not be straightened by such appliances (and he was right); so he devised a bed in which the patient was to lie, while extension was applied in various directions. The principle, so far as it went, was right, but it did not straighten the spine. This was Lonsdale, in 1847. (Figure 29.)

Fig. 29.

Six or seven years ago, after much work, I devised a bed on a somewhat similar principle, and I was on the point of publishing it when I found in London, in an old book publisht in 1829,

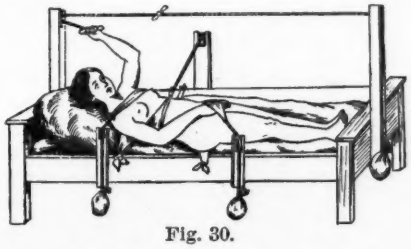


Fig. 30.

an exact counterpart of it. (See Figure 30.) It was an extension bed for the treatment of lateral curvature of the spine. With one arm the patient practices gymnastics while in the recumbent position.

We are again coming to the belief that gymnastics are all-important in the treatment of lateral curvature of the spine, yet I have found a picture of an apparatus devised in 1743, by Andre, which illustrates the carrying out of such gymnastics. (See Mayer, 1829.)

Many well-known and conscientious orthopedic surgeons have made various frames in which the patient is placed while attempts are made to straighten the spine by means of screws,

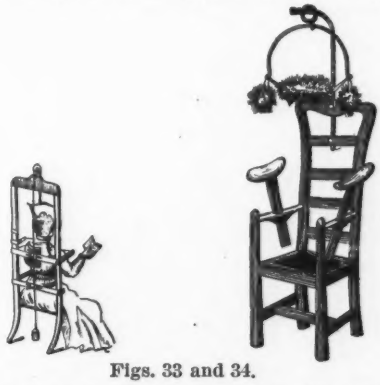
Fig. 31.

the pelvis being held firmly. Figure 31 is a picture of such an apparatus devised in 1788 for accomplishing the very same thing, and it or its modifications have been used until the present.

Fig. 32.

Levascher's (Figure 32) represents an extension apparatus for lateral curvature, or Pott's, made by Vense, 1768.

We have in this country what is known as the Meigs-Case chair, by which the patient is enabled to walk and at the same time be supported. Here is a picture of a similar apparatus made in 1826, by Bloemer, and Darwin, 1801. (Figures 33, 34.)



Figs. 33 and 34.

The reason these devices have all been discarded is that it has been found that they are without avail. It has only been toward the end of this century that we have found the true principle of bracing the spinal column, whether for Pott's disease or lateral curvature. Sayre taught us that suspension and fixation (while the patient is suspended) should be the fundamental rule of treatment. That is right. He also taught that plaster-of-Paris was the best thing to do it with, and that is right also (in true Pott's disease).

We have gone over the history of spinal bracing briefly, and it must be evident to every one that very few of these braces have any merit, yet all the steel braces used at the present day are based on the same ancient principles. The question then arises as to how we shall treat these cases. I think when Sayre invented the plaster-of-Paris corset he gave to humanity an inestimable boon. When properly applied it gives excellent support,

All of the braces I have ever seen do not properly support, because the pelvis-band tilts on the pelvis, and the anterior-posterior supports only increase deformity in every case of Pott's attended with a lateral curve, and more than 25 per cent of such cases have the lateral deviation.

Bonet, in 1860, added other attachments for making pressure. (See Figure 35.) In 1794, Schmitt invented the "Knight's" brace,

Fig. 35.

now in use in the Forty-second Street Hospital (Figure 36). Kohler, in 1795, invented the collar and chin-piece attacht to a

Fig. 36.

rod or mast, which was attacht to a pelvic band, for use in high curves and cervical Pott's, exactly as it is used to-day by some orthopedists (Figure 37). It bears the name to-day of Taylor and

Fig. 37.

others. Brown, in 1848, tried to straighten curves of the spine by means of lateral pressure, exactly as it is done to-day by the mod-

Fig. 38.

ern orthopedist (see Figure 38). In 1863, Goldschmitt invented the complicated brace for lateral curvature (shown in Figure 39).

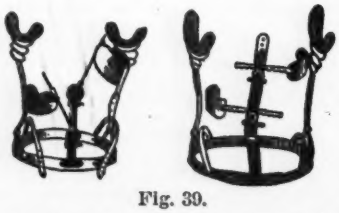


Fig. 39.

This has been the brace from which many of the ideas for modern braces are taken. Figure 40 is Beely's suspension apparatus,

Fig. 40.

1887, and Figure 41, Sayre's, 1876. A glance will show the similarity of each, and also to Van Nuck's, 1696.

Fig. 41.

## HOW TO MAKE A PLASTER PARIS CORSET FOR POTT'S OR LATERAL CURVATURE.

Place under the gauze shirt "a dinner pad," a folded towel to make room for distension of the stomach. The "cross-bar crinoline" is objectionable for the bandage material because it carries too much water and interferes, therefore, with the "setting" of the plaster. The best material is the cheapest of crinoline which contains little or no sizing.—Fig. 50, No. 100, Sweetser, Pembroke

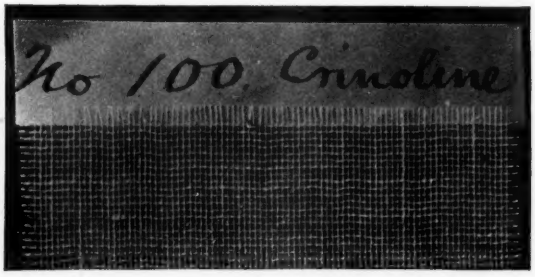



Fig. 50.

& Co., N. Y. The best plaster-of-Paris should be used. It is obtained from the S. S. White Mfg. Co., and is put up in air-tight cans. The crinoline comes in 12 yard lenghts. Tear this in two, making a piece six yards long. This is to be torn up in strips 5 inches wide. This furnishes the foundation for the plaster bandage. Only just enough plaster should be rubbed into the bandage as will be retained by the meshes of the crinoline; the plaster should not lie loosely on the bandage. The success of a corset depends very largely upon the first bandage applied.

The patient is now suspended slightly by means of the chin and shoulder straps. The first two or three turns of the bandage are applied snugly around the lower part of the abdomen at the

Figs. 42 and 43.

middle and down on the pelvis. Figs. 42 and 43. Only about

three or four bandages will be required for a patient five years old, commencing at the bottom of the corset with each subsequent bandage. I remember that in the first plaster corset I ever made I used about thirteen bandages of heavy cheese cloth, into which I rubbed as much plaster as possible, and then, not content with that, I rubbed on some additional plaster while applying the corset. The corset weighed 14 pounds! Be sure to rub the layers of bandage well together with the hand, so as to get rid of the air; it is not a heavy, but a compact bandage that you require.

This is a very simple process, but the success of the plaster-of-Paris corset depends upon the amount of cerebral matter mixt with them.

Remember that we desire to utilize the principle of antero-posterior pressure when necessary, but not in lateral curvature. We also desire to hold the patient in the suspended position, press

Fig. 44.

the corset in over the crest of the ilium to prevent it from slipping. These are the two main ideas to be followed out in the application of the plaster-of-Paris corset. Now that the plaster is just setting, the body is seized with both hands on either side,

Fig. 45.

and presst forward while the assistant makes counter pressure between the vertebrae, and places the weight of the body upon the

Fig. 46.

transverse and articular processes. But it would not do to leave the bandage this way, for it would soon cause excoriation. Remove the "dinner pad" and then press the corset a little antero-

Fig. 47.

posteriorly over the abdomen. See Fig. 47. In this way the corset is slightly "sprung" away from the anterior superior spinous processess, and excoriation is thus prevented. Of course, the corset will need to be trimmed off a little at the top and bottom. A sharp knife is the best instrument for cutting away soft plaster-of-Paris corsets; it does not catch and tear as do the shears. Another important practical point in applying plaster-of-Paris bandages to fractured limbs is, that if you cut nearly thru the plaster bandage with a knife while the plaster is still soft, and then apply an ordinary bandage, you will find much less difficulty in removing the plaster bandage. The plaster-of-Paris corset may be applied over a long stockinette shirt; the lower portion of the shirt can be turned up over the corset, thus giving it a nice finish.

Fig. 48.

Fig. 48 shows a properly made bandage and how to make it. Fig. 49, the shirting in a roll.

Fig. 49.

The stockinette can be secured from any first-class instrument concern, costing from 20c. to 40c per yard.

## IN REGARD TO THE TREATMENT OF LATERAL CURVATURE OF THE SPINE.

The principles involved are entirely different from those of Pott's. In Pott's disease a permanent corset is applied for the purpose of fixation and extension. In lateral curvature the support is applied for the purpose of fixation and extension during the time the individual is in an erect position, which is removed at

night, and gymnastics with proper breathing exercises are practist morning and night. These exercises should be done while the patient has on the support, because I have observed that greater benefits are derived from this method than from removing during gymnastics. In lateral curvature of the spine, the principle of treatment is extension and fixation to relieve pressure at the point of curve, which prevents the further absorption of bone. Gymnastics, muscular and respiratory for the purpose of strengthening the spinal muscles increase the capacity of the thorax and add in forming compensatory curves. Time will not permit me to go into the discussion of the subject of gymnastics, but I wish to say that nearly all cases of lateral curvature of the spine in which the deviation from the median line is more than ½ inch of the diameter of the body of the vertebrae should be braced, else absorption of the vertebrae from pressure is bound to go on. Now, I have seen hundreds of these cases treated by the best gymnastists by the Ling method and other methods of gymnastics from the hands of the best orthopedists of this an other cities and they have almost invariably given to me a history of increasing deformity. It is for this reason I shall urge the profession to continue to brace the class of cases which I have designated with a proper fitting plaster-of-Paris corset, or

Fig. 51.

what is far better in my opinion an aluminum corset. Figure 51 represents a well made plaster-of-Paris corset with lacing.

It will not be necessary for me to enter further into a consideration of the subject of plaster-of-Paris corsets. The aluminum corset, however, is to my mind an ideal spinal support. The wood corset I believed at one time would fill the requirements in all cases, but I found that every form of wood corset would change its shape, as does also the sole leather, raw hide, felt, celluloid and paper corsets. The patient will invariably shorten during the warm weather with these dressings, but with a plaster-of-Paris or aluminum corset, this shortening will not be observed, and the test of any support is the question of how much taller it makes a patient. An aluminum corset has this to recommend it, it will not change its shape, it is almost indestructible. When kept well shellaced the perspiration will not affect it. It is light, and perforated, which makes it a very cool corset in the summer time, being made entirely of metal.

Patients with Pott's disease of the spine are enabled to go in bathing at the seaside during the summer months, which is

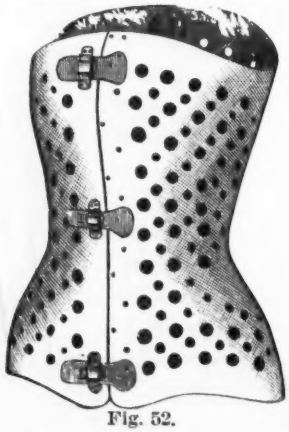


Fig. 52.

a very great advantage. Figure 52 conveys a very good idea of the aluminum corset.

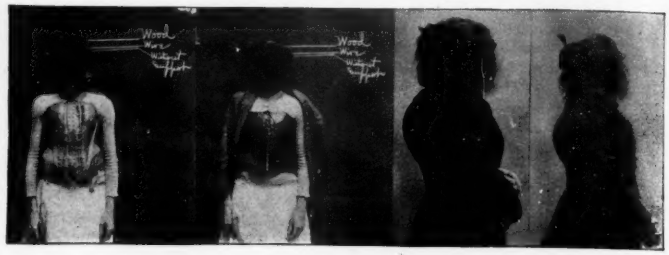


Fig. 53. Fig. 54. Fig. 55. Fig. 56.

Figures 53-54-55-56 show a case treated with wire corset, and afterwards with wood corset. She was something like 2 inches taller with the wood corset than with the wire corset. With an aluminum corset after operating upon her, dividing the quadratus lumborum and erector spinae muscles she was 4 inches taller than with the wire corset.

I desire to say one word in regard to the operative procedure in lateral curvature of the spine. Where very strong bands of muscles are to be found stretcht across the curves, such patients are to be etherized and these muscles divided. I frequently gain from 2 inches to 6 inches by an operation of this kind.

## DIVISION OF FEES.

BY ROBERT T. MORRIS, M. D., NEW YORK.
Professor of Surgery in the New York Post-Graduate Medical School.

On page 90 of the Journal for January, 1901, Dr. Vaught states that he will divide the fee with any physician who sends surgical cases to him, and he believes that no wrong will be done to the physician, to the patient or to himself.

This is apparently such a flagrant transgression of plain ethics that the thought is suggested: perhaps there are no opposite sides to the question after all; and that we are simply misunderstanding each other's position. It all turns on the matter of division of the fee with or without the patient's knowledge. The same point in ethics would apply, if we take the patient's pocket book out of his pocket—with or without his knowledge. The courts of law regulate the ethics of the latter procedure.

Very recently I have refused to accept two cases for operation. In one the patient was to have paid one thousand dollars, and the physician wished to receive two hundred and fifty dollars. In the other the patient was to have paid three hundred dollars and the physician wished to receive one hundred dollars. I wrote the physicians that I would be very glad to accept the cases and to make such division of the fees—provided that the patients were aware of the division—otherwise not. These patients have in all probability been taken to some one else by this time, as nothing further has been heard from them!

Patients are sometimes more ready to pay the surgeon a fee for operation than they are to pay the physician for his equally important part in the after-care of the case, in carrying the patient back to a condition of good health. Under such circumstances I make it a point to explain to the patient the reason why he should provide for the physician as well as for me. It leaves the patient with more respect for the physician and it is an aboveboard transaction that makes good feeling all around.

I have been associated a good many times with physicians whose fee amounted to more than my own, and the proportion was proper and desirable. If this is what Dr. Vaught means by "division of the fee" it is an honorable transaction and in keeping with the best interests of a respected profession. If, on the other hand, he offers to pay physicians for sending surgical cases to him, it is a "shopping" transaction—and one in which the surgeon who most needed cases would be the one to offer the largest "shopping inducements." Competition of this sort would naturally be opposed to the interests of the public, which require that merit should win.

The "moral ethics" in the matter are very clear and I trust that Dr. Vaught had in mind the idea of proper compensation of the physician with the full knowledge and understanding of the patient when he offered to "divide the fee."

[It would seem that the solution of this much-discust problem is easy: For consultations, or for cases simply "referred" to a specialist, there should be no "division of the fee"; but where both specialist and general practitioner treat the patient, equitable division of the fee in accordance with the degree of responsibility, amount of labor and intrinsic value of services of each is proper and right—provided, as Dr. Morris so clearly points out, it is not a secret matter, or made a pure "commission" transaction. The family doctor may with propriety, say to the patient:

"Dr. Morris and I will operate upon you and attend to the after-treatment for three weeks for $1000. You may pay whichever one of us you choose and we will settle between ourselves." Many patients prefer this mode of settlement. If Dr. Morris thinks the value of services rendered by the attending physician is as great as his own time, skill and services, equal division of the fee is proper, and no injustice done any one. Between honest men this mode of procedure is the best yet suggested and is growing in popularity; with dishonest men every specialist will know how to deal.—Editor.]

## A PECULIAR ACCIDENT FROM THE USE OF RUBBER GLOVES.*

BY EMORY LANPHEAR, M. D., PH.D., ST. LOUIS, MO.
President of the St. Louis Academy of Medical and Surgical Sciences; Gynecologist to St. Joseph's Sanitarium.

A peculiar accident recently occurred in my work of sufficient import to warrant a brief report.

Some weeks ago while making an abdominal section by artificial light the uterine artery was accidentally cut beyond its point of ligation. My rubber-gloved hand instantly was thrust deeply into the pelvis and the index finger prest against the bleeding point. My assistant past a chronicized catgut ligature around the vessel—burying a part of it with a needle—and tied down tightly upon it. By some means the tip of the rubber enclosing the finger was caught by the ligature and amputated; and as the broad ligament retracted behind the cut margins of peritoneum the accident was not noted in the poor light and in our haste to complete the operation—the patient being in extremely bad condition. No drainage was necessary.

The patient did badly, having an unexplainable temperature of about 100 degrees from the outset— a fever not changed by any form of treatment; and a constant, dull pain deep in the pelvis on the left side. About the tenth day vaginal examination revealed a lump to the left of the cervix, which by the fourteenth day was sufficiently large to be felt above Poupart's ligament. Under chloroform the vagina was incised and blunt dissection made upward into the center of the mass. A gush of blood followed, and then a mass of half-organized clot surrounding the piece of rubber still held in the grasp of the ligature came away!

The cavity was irrigated with bichloride solution and gauze drainage instituted for two days. Immediate union occurred on removal of the gauze, with subsidence of the "tumor" in the pelvis and early convalescence of the patient.

Had there been an infected pelvis, or had the finger inside the rubber not been properly sterilized, a fatal result might readily have followed this accident.

It is unnecessary to point out the moral.

*Reported to the St. Louis Academy of Medical and Surgical Sciences.

New England Medical Monthly quotes Fowler, of New York, as having added three cases to the list of diffuse, septic, peritonitis successfully treated by elevation of the head and chest—there having been nine previously cured. The method includes an abdominal section, the cleansing of the region of the original infection with peroxid of hydrogen, thoro flushing of the abdomen with decinormal saline solution at 110 degrees F., deep pelvic drainage, and the elevated head and trunk posture to facilitate the passage of fluids from the intestinal and diaphragmatic areas to the pelvic portion of the peritoneal cavity. The peroxid solution is at times used in full strength or is diluted with a saturated solution of sodium bicarbonate. The flushing with saline solution is done systematically and many gallons of fluid used. Eventration is believed to increase the risks and, if possible, should be avoided. In the three cases reported the general peritonitis had resulted from appendicitis, and in each case the appendix was excised and a glass drainage tube introduced into the pelvis. The head of the bed was elevated from 15 to 18 inches above the horizontal, and the after treatment also included frequent enemas of saline solution, stimulation by strychnin and caffein, and in one case at least, the free use of liquids by the mouth. In each case the vomiting promptly subsided and flatus escaped in from 6 to 12 hours. The relief from vomiting and the early expulsion of flatus is attributed to the position, and unless the progressive and persistent failure of the circulation persists in spite of stimulation the continuous use of the posture from the commencement is advised.

Medical Age says that at the last International Congress of Medicine, Galubinin, of Moscow, reported that he had employed in eight cases the method of treating aortic aneurisms by injection of gelatinized serum recommended by Lancereaux and Paulesco. The number of injections varied, according to the case, from two to fifteen. Of the eight patients, four died in a short time, and the other four were lost sight of; in three of the cases belonging to the latter group the injections produced no effect. In the remaining one they were followed by slight improvement in the subjective symptoms without modification of the objective signs. Dr. Golubinin had come to the conclusion that the method did not fulfil the expectations that had been founded on it. Dr. Huchard said that in the treatment of aortic aneurisms it is a mistake to allow oneself to be hypnotized by the changes to be brought about in the contents of the sac—that is to say, in the blood—and to take no account of the containing structure. The method of gelatinized injections, which is useful, altho insufficient, is open to this criticism. To complete its action, especially in persons with large heart and increast arteral tension—they are almost always at the same time subjects of Bright's disease—medicaments should be chosen which diminish arterial tension, such as potassium iodide, trinitrin, nitrite of amyl, and especially tetranitrate of erythrol, or tetranitrol, which Dr. Huchard has now used for a considerable time, and which, as compared with trinitrin, has the advantage of a more durable action. Moreover, an essential point is to supervise the diet, not in regard to quantity, as in Valsalva's method, but in regard to quality. Meat, which holds too large a place in our food, contains toxins which have an excessively powerful vasoconstrictor action. The best treatment of aortic aneurism is still absolute milk diet regularly adhered to.

That either the intravenous or subcutaneous injection of solutions of gelatine cannot prove of much benefit in the treatment of inoperable aneurism—a treatment which has been strongly urged of late—would seem to be proven by recent experiments by Gaglio upon animals. As a result of a most careful series of observations he draws the following conclusions: First, Gelatine, when mixt directly with blood outside of the organism, slightly favors coagulation, and gives rise to the formation of soft coagula, not firm and contractile like those of normal blood or of blood treated with real hemostatics. Second, Gelatine may be injected into the blood vessels in very large doses without producing coagula within the vessels. It disappears slowly from the blood. The blood which is obtained after these injections coagulates a little more rapidly than normal blood; the coagula are soft and not firm and contractile. Third, Gelatine injected subcutaneously or into the peritoneal cavity is absorbed very slowly, possibly only by the lymphatics. This absorbed gelatine does not increase the coagulability of the blood. At the point of injection there appears an abundant infiltration of leucocytes attracted by the positive chemotactic property of the gelatine.

One of the latest applications of hot normal salt solution is in the treatment of pleural effusions. Concerning it Dr. John A. Robison, Professor of Medicine in Rush Medical College, says (Medical Council): I know of nothing so perplexing as a case of chronic non-tubercular pleurisy with effusion which, after repeated aspirations, refuses to abate. Last year I had such a case under treatment in the Presbyterian Hospital, and after aspirating for the fifth time my interne suggested that we try the injection of the hot normal salt solution. The suggestion was adopted, and the patient, a young lady, suffered no inconvenience from the injection beyond remarking, after a few ounces had been injected, that it caused a sensation of internal heat and stimulation, similar to the effect produced by drinking a warm liquor. In twenty-four hours the amount of urine was increast 20 per cent and in seventy-two hours the pleural cavity was almost free from effusion, which did not return. Another case was aspirated and the fluid was so fibrinous that it flowed with difficulty thru the aspirating needle. After three ounces had been removed the hot normal salt solution was injected, allowed to remain a few minutes, and then the aspiration was continued with the advantage of a freer flow of the fluid. This method was repeated three times, until nearly the entire fluid was evacuated, then the pleural cavity was filled with the hot normal salt solution which was allowed to remain. In ten days the effusion had disappeared, and it never returned. In a case of pneumo-hydrothorax, seen in consultation, in which an incision had been made and drainage tube inserted thru which came sero-purulent fluid, the injection of the hot normal salt solution lessened the purulency of the fluid, and allowed the patient to live comfortably for several weeks. The rationale of the treatment is simple: first, it increases osmosis of the fluid from the pleural cavity into the blood vessels. Second, it increases the activity of the absorbent lymphatics. Third, it is a solvent and an antiseptic. Last, the heat of the injection has a stimulating influence on the pleural vaso-motor nerves, dilating the capillaries and hastening the blood current.

# American Journal of Surgery and Gynecology

—EDITED BY—

**EMORY LANPHEAR, M. D., Ph. D., LL. D.**

Formerly Professor of Operative Surgery in the Kansas City Medical College and Professor of the Principles and Practice of Surgery in the St. Louis College of Physicians and Surgeons.

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The spelling found in this magazine is that voucht for by the most prominent educators of this country, and is recommended for general adoption.

ST. LOUIS, FEBRUARY, 1901.


## EDITORIAL NOTES.

Occasionally some physician objects to the American Journal of Surgery and Gynecology as "too technical" or as "a magazine devoted to the interest of specialists rather than general practitioners;" or complains that "too many operations are described" and "too much space given to the writings of specialists."

At first glance perhaps one might think such objections to be well deserved; but they are not. What are the objects of a journal such as this? First: To educate the general practitioner to recognize what is and what is not an operable case. Second: To teach the doctor how best to operate upon emergency cases; and upon others if he so desires. Third: To enable him to become familiar with the names and the capabilities of men who may operate upon such cases as he may not—for various reasons—choose to operate upon himself. Fourth: To elevate the medical profession upon the whole to a higher ethical and scientific plane.

Concerning the first of these objects it may be said that surgery (and incidentally gynecology) is advancing so rapidly that the average doctor is likely to be far "behind the times" unless he read some such periodical. Diseases but a few years ago deemed wholly within the province of internal medicine have been clearly proven to be entirely within the realm of surgery; affections but recently regarded as incurable by any means are now cured—almost miraculously—by surgical procedures. Is a journal devoted to a description of the technic of these life-saving operations and to the means of recognizing the indications for surgical interference "too technical" for any practitioner who has the welfare of his patients at heart? Can a knowledge that such conditions are curable by certain means, even tho he may not be able to carry out the rules laid down by specialists, be obtained in any other way than by reading the contributions of the eminent men who write for such a magazine?

The doctor of to-day who lets his patients die for want of timely operation is not only derelict in the fulfillment of his duty to his patrons but morally responsible for the fatal result. Every practitioner must therefore read journals which will inform him of the most recent advances in diagnosis. No physician is now excusable for not recognizing conditions like ruptured tubal pregnancy, appendical abscess, suppurative salpingitis, empyema, abscess of the gall-bladder, tuberculosis of joints, suppurative pyelitis and scores of other maladies which imperatively demand operative treatment; as well as those less important conditions (less important because not immediately fatal) like fibroid tumors, wandering kidneys, chronic appendicitis and many other conditions which never yield to medical treatment but are readily curable by surgical methods. To the education of the medical profession along the lines of diagnosis and the proper means of cure of all surgical and gynecological cases this journal is therefore primarily devoted.

Of secondary importance is a description of the various means by which surgical and gynecological affections may be cured. To the average country doctor of twenty years' practice the articles devoted to this part of the subject may not prove interesting; from the selfish motive of how he himself may treat these cases—for the technic may—probably is, in many instances—far beyond his ability to carry out, at least in his present environment. But shall he sit idly by and let a man die of pulmonary abscess simply because he has never read that such a condition may be cured by timely operation by a competent surgeon? Shall he fail to prevent a death from rupture of the middle meningeal artery simply because he has never read a description of it by which it may be recognized or heard of the proper treatment? Must he continue to call pyosalpinx "typhoid fever," osteomyelitis "malarial fever," or tuberculous joints "rheumatism," because a dollar spent for the American Journal of Surgery and Gynecology brings articles "too technical" and written by specialists?

The average physician reads entirely too little of current literature; and often that which he does read is of an inferior quality, sometimes of choice, rarely of necessity. Every medical man should take, read and pay for, at least a half dozen good medical journals; and not depend (as alas! so many do) upon the scores of "sample copies" which find their way to his office every month—free copies of journals devoted chiefly to the exploitation of some proprietary article of more or less value. What the common doctor needs is more knowledge, more skill; above all more ability to decide what he can do himself and what he must depend upon someone else to do.

There are plenty of honest surgeons and gynecologists in every part of this country—men of ability to whom the hard-workt general practitioner may safely refer such patients as he believes to be beyond his skill; and there must ever be cases of such magnitude or importance as to demand the assistance of men of special training. Unless the doctor read some such journal as this how may he decide who is the best man in any particular department of surgery to serve him and his patient? The progressive, earnest, scientific surgeon or gynecologist is the man who conscientiously records his failures and his successes, who decribes his methods of work, who points out any new thing he may have learned concerning disease—its recognition, prevention or cure; and a journal such as this is the one in which such reports appear. That they may be written in language a little beyond the comprehension of the few illiterate men whom we still have in our midst is true; that they meet with the approval of a vast majority of the well-educated, ambitious physicians of this country is attested by the thousands of new names added to the list of subscribers in the past few years.

The list will continue to grow, too, if the present standard of contributions is maintained; for the hundreds of young men going out from the better medical schools of to-day are not those who will depend upon that class of medical publications (like one or two well-known St. Louis journals and two or three publisht in Philadelphia) which appeal to the "submerged third;" they are joining the ranks of intelligent, educated physicians who have pride enough to keep themselves above the level of "the great unwasht," who have ambition enough to keep fairly well informed as to progress in every department of medicine, and who have sense enough to appreciate the fact that they are not " the whole thing"—in other words that they must persistently read good journals devoted to the progress of the more important specialties as well as those which tell how to cure "cramps." To these thinking, educated, progressive medical men the American Journal of Surgery and Gynecology appeals for support. It is not a special journal, by specialists, for specialists; but a surgical and gynecological journal of practical value, written by men of depth and experience, for general practitioners who desire to know of the advances in two of the most important departments of the healing art.

So far as concerns its fourth object (the maintenance of ethical principles as applied to every-day life and the improvement of our profession as a whole) it may be said that the work accomplisht in the past in the matter of suppression of unlawful practices, the elimination of quackery, the obtaining of needed medical legislation and the elevation of the standard of medical education speak louder than any words. That the future holds much yet to be done cannot be doubted; that this journal shall ever be found the advocate of purity in matters medical, of a strict adherence to the principles of right and justice on the part of every doctor, of greater liberality toward those of other views, of the early adoption of true socialism in its application to the practice of medicine and to the support of every legitimate effort to lift the profession of medicine to that high plane to which it belongs, is hereby pledged. If it meet the financial and moral support of the better element of the profession and the patronage of medical advertisers who desire to reach this class, its founder will be satisfied; if it fall short of this—'tis his fault and he will grumble not. Tolstoi has remarkt that "men are fractions; the best qualities, the real merit of a man constitute the enumerator—the opinion he has of himself is the denominator; the larger the denominator the smaller the importance of the enumerator!" And the same may be made to apply to medical journals. "By their fruits shall ye know them."

Oklahoma is "strictly in de push" now—a medical college has been establisht in the territory. And it is such an elaborate affair, too; having an official organ yclept "The Medical Iconoclast" and a faculty made up as follows:

Professor H. Warren Newby, M. D., M. E., D. P., Electro-Therapeutics, Suggestive Therapeutics, Diagnosis, Psychology, Obstetrics, Dermatology and Clinics.

W. H. Boles, M. D., A. M., D. O., Professor of Hygiene, Hydropathy, Medical Jurisprudence and Rights of the People.

Rev. Ligouri Darche, M. D., D. D. S., A. M., Professor of Theory and Practice of Materia Medica and Lecturer on Chemistry.

J. K. Richardson, M. D., Professor of Gynecology, Genito-Urinary Diseases and Practical Medicine.

G. H. Stagner M. D., D. O., Professor of Osteopathy, Massage, Swedish Movements, Hypnotism and Physio-Materia Medica.

R. H. Hughes, M. D., M. H., Professor of Anatomy, Mental Science, Magnetic and Metaphysical Healing.

Laura Lee Stagner, Professor of Preventive Medicine, Sanitary Science and Diseases of Children.

W. L. Newby, Attorney at Law, Medical Jurisprudence and Rights of the People.

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It is not every country which possesses a school with a chair of "Theory and Practice of Materia Medica" filled by a "Reverend" who is an M. D., a D. D. S., and an A. M. (not to mention A. S. S.) and which announces that "Doctors, Dentists, Healers, Osteopaths, Electropaths, Hydropaths and others engaged in their respective fields of labor, can be graduated AT ONCE upon furnishing satisfactory evidence of ability and good practice for a sufficient length of time. Proof can be establisht by sworn statements, testimonials, references, etc. Students in attendance Graduated and Diplomas granted when qualified practically."

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This great "Medical College" is located at Guthrie, Ok., is known as the "Twentieth Century Physio-Medical College," has a three-months' course in "medicine" for $50, a three-weeks' course in "magnetic, mental and metaphysical healing" (mail course and diploma, if preferred) for $20, and a six-weeks' course in osteopathy for $50. Anyone wanting a diploma of the kind issued by this school may write to Professor C. A. Newby, Secretary (whose name, by the way, does not appear in the "faculty;" is he Professor of Christian Science?), 221 Oklahoma Ave., Guthrie, Ok. It is beautiful.

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The criticism of Professor Seneca D. Powell, of New York, publisht in last month's Journal deserves careful answer—first because of the eminence of the critic as a teacher and operator and second because of the importance of the questions involved. It may first be stated that the position taken in the editorial comments upon his methods of practice were designed to be wholly impersonal; the remarks being entirely upon mode of procedure and results. For Dr. Powell as an operator and teacher the writer has only the most profound respect; with some of his procedures he has no sympathy, believing them to be ill-advised to say the least.

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Thus in the matter of craniectomy for the relief of imbecility—results thruout the world have been so unsatisfactory as to lead to the abandonment of the operation; even Lannelongue himself, the man who first popularized the surgical treatment of microcephalus, has abandoned the method. A number of Western operators (as remarkt in the November number of the Journal) tried the operation years ago and conscientiously watcht the progress of cases year after year, finally reaching the conclusion that results do not justify the trouble, expense and danger in a vast majority of cases. It is probably true that in the hands of such a skilled operator as Powell the mortality is less than 5 per cent. It is also unquestionably true that markt improvement sometimes follows his operation; but in this instance it is not necessarily post hoc ergo propter hoc—just as good results are often obtained by the systematic training of the imbecile without operation. The consensus of opinion among those who have carefully investigated the subject is that the improvement following operation is not due so much to any change wrought in the physical condition of the patient as to the increast interest of parents and friends and their concentrated efforts to make the operation yield results; in other words if the same amount of effort had been made with the child unoperated the same identical results would have been obtained. It is pretty generally agreed, then, that the operation merely acts as a stimulus to the natural teachers of the child and not to the child itself.

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If Dr. Powell can explain satisfactorily how operation effects a change in the brain by reason of which intelligence is developt where no reason existed prior to his work, neurologists as well as surgeons thruout the world will feel grateful to him. If beyond that he will publish a report of his operative work for mental weakness giving, first, his primary mortality, second, the number of total failures, third the number of cases in which some improvement has followed, fourth, the number of patients who have improved sufficiently to talk and to care for themselves so far as the common things of life are concerned, and fifth, the number of children changed sufficiently that they have learned to read and write, it will be a contribution of unbounded interest to every physician of the world, providing the results are as favorable as the enthusiasm of the distinguisht author would lead us to hope. The world is crying for facts such as these. If Dr. Powell has a large record of successes it is but fair to our profession that the widest publicity be given it—that an operation almost totally abandoned by other competent operators shall once more become popular and the imbecile-world immensely benefited thereby. It means much work in the compilation of accurate reports; but the good to the world will far more than compensate the doctor for his toil.

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In the matter of the expression: "the use of pure carbolic acid as an agent to produce sterilization of a suppurating area is deserving of further experimentation—especially by railroad surgeons," it may be said that this form was used advisedly. Dr. Powell unquestionably does some rather remarkable things with pure carbolic acid (followed by alcohol as a neutralizer), including the treatment of certain forms of suppuration in such way as to cause immediate cessation of the suppurative process—even, in some instances, securing practically primary union where a long, purulent healing would be commonly expected to occur. But the character of the pus in such cases may be—indeed probably is—quite different from that met in railroad surgery. In a pure streptococcus infection, for example, where the tendency to the formation of pus is never great the use of pure carbolic acid may result in such changes in the micro-organism as to completely prevent the further formation of pus; while with a staphyllococcus infection the same good might not be obtainable. In railroad work wounds are often contaminated with streptococci, staphyllococci, even the bacilli of tetanus—a "mixt infection" with a vengeance; here it may not be possible to secure the same results Dr. Powell obtains, and his method is, indeed, worthy of further "experimentation."

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Dr. Powell further objects to the use of this term because he believes his results have been such as to put the method beyond the limit of "experimentation." It is possible that he has somewhere publisht the details of his work—surgical literature is now so voluminous that it may have escaped notice of the editor—in which he has given the details necessary to place his technic beyond the pale of experimentation; if so this journal will give its readers the benefit of it upon presentation of the facts. If not, Dr. Powell should by all means give every minute point of information to the surgical public. In such record it will not do merely to say that "suppuration" in such-and-such a location was arrested by the application of pure carbolic acid followed by alcohol.

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To make such a report of value to the modern surgical pathologist it must give the specific character of the microorganism at fault in every instance. If an abscess of the glands of the neck, containing nothing but pus the result of infection by the bacillus tuberculosis, be cured by this treatment—let us have the bacteriological findings and the particular method of procedure to cure. If a streptococcus abscess of the neck (commonly called "carbuncle") can be checkt in its career by the same remedy, let us know the bacterial source of the suppuration as demonstrated by the microscope, and the particular plan of application of the remedy. If an appendicular abscess due to the bacillus coli communis alone can be arrested in its course by carbolic and alcohol, let us have the demonstration of bacteriologist and surgeon go hand in hand. And so on thru the dozen or more pyogenic bacteria. Nothing short of such a report will satisfy the carping critic, verst in bacteriology and pathology, that the labors of this justly celebrated surgeon have past the boundaries of "experimentation."

## SURGICAL NOTES.

When a patient refuses operation for nevus or there exists any special reason why it should not be removed Dr. Robert T. Morris, Professor of Surgery in the New York Post-Graduate Medical School, injects from 15 to 30 minims (according to the size of the nevus) of tincture of thuja occidentalis into the body of the venous mass. This causes a plastic deposit which destroys the endothelial lining of the vessels and by the secondary contraction a cure is often effected. It cannot be used in very large

or in pulsating nevi as instead of causing local coagulation the thuja would pass directly into the general circulation with perhaps disastrous results.

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Fracture of the neck of the femur in childhood has been regarded as of great rarity, but Whitman reports (Annals of Surgery) 18 cases in children between the ages of two to sixteen. The physical characteristics of this injury are shortening of the limb of one-half to three-quarters of an inch, with corresponding elevation of the trochanter and slight outward rotation of the leg. For several weeks or months there may be discomfort on manipulation, but when repair is complete the range of motion is not restricted or is but slightly limited, and a slight limp is the only symptom. Until recent years this injury was supposed to be confined to adults. In many instances patients are able to walk about within a few days; thus it may be inferred that the separation of the fragments is incomplete, and that the fracture is rather a bending than a displacement. Discomfort or pain during the stage of repair is very often mistaken for hip disease. Roentgen pictures show depression of the neck as a whole, rather than at the epiphyseal junction. Whitman has also seen 30 cases of coxa vara (which is, practically speaking, fracture of the neck of the femur) in children, but in many instances there may be inherited predisposition to the deformity, or slight depression may result from rachitis. Reports are given of six cases, and all but one of these were treated by operation. The first essential is the restriction of abduction, whether of ligamentous or muscular origin, before operating on the bone. A wedge of bone about three-quarters of an inch in breadth is usually removed opposite the trochanter minor; the leg is held in extreme abduction by means of a plaster of Paris bandage, which should also include the foot, until union is firm. In case of fracture of the neck of the femur, it is sometimes possible to replace the neck to a certain degree by forcing the limb into extreme abduction and fixing it in that attitude by plaster of Paris bandage or other appropriate apparatus; during consolidation an ordinary traction splint is best applied.

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For the relief of chronic vesical catarrh one may successfully employ irrigation of the bladder with a solution of permanganate of potash—two grains to the quart of water. It must be used as hot as the patient can bear, twice daily, if possible.

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New York Medical Journal gives a synopsis of a paper by Carini on the probable parasitic origin of cancer. He points out that in some ways, malignant tumors appear to resemble infectious maladies, themselves the result of bacterial action. For instance, the tendency of cancer to cling, as it were, to certain houses, or even rooms of houses; the fact that cancer may be communicated from one part to another when these are adjacent, as from one lip to another; the possibility of inoculation of tumors being carried out. [But the latter facts are just as easily explained on the assumption that the actual cells of the growth are introduced into the sound structure.] Very early it was considered that the parasites of cancer were schizomycetes; next they were described as sporozoa; and now we are told that blastomycetes are the real offenders. The author gives a full account of the observations on which these various theories were founded, and calls special attention to the discovery by Russell in 1890 of certain peculiar bodies in cancerous growths, which, from their power of staining deeply with fuchsine, were described as "fuchsinophiles," and which were classed as blastomycetes. Carini has set himself the task of ascertaining if it is possible to obtain blastomycetes from malignant tumors removed from the living subject, and, having obtained the same, to make cultivations thereof; next, if such isolated blastomycetes can, by being introduced into living animals, produce malignant growths; to stain the same organisms in the affected tissue; and, lastly, to ascertain if these organisms occur elsewhere than in malignant tumors. Now, he thinks that the result obtained practically settles the question as regards the potency of these micro-organisms in causing malignant growths, for even when the presence of the blastomycetes of Russell had been detected by histological methods, yet it was not possible to isolate these bodies. With pure cultures of blastomycetes in animals, in no case were neoplastic growths produced. The very nature, whether blastomycetes or not, of the bodies described by Russell is doubtful. Further, such bodies occur, and not rarely, in other structures. They were found in tuberculous lesions, and even in healthy tissues. Lastly, the bodies described as sporozoa do not absorb the colors which are characteristic of blastomycetes. The conclusion drawn by the author of this paper is that all the effusions which have been produced concerning the parasitic origin of cancer, etc., are absolutely groundless and altogether erroneous.

## GYNECOLOGICAL NOTES.

Within a period of six and one-half years Dr. J. W. Cookley, of Mt. Etna, Iowa, has performed Cesarian section three times upon the same woman. A report of the operations appear in the last issue of Medical Brief. It speaks volumes in favor of this procedure as an operation of selection. A few such favorable results, properly called to the attention of medical men everywhere, should lead to the total disappearance of craniotomy upon the living child—an operation now universally condemned by every surgeon of note. Cesarian section is just as safe for mother; and saves the child.

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In Medical Sentinel Dr. J. W. Bean, of Ellensburg, Wash., reports a persistent sciatica relieved by suspension of a sharply retroflext uterus, held down by dense adhesions.

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Dr. Francis D. Donoghue records (Boston Medical and Surgical Journal) a case of placenta previa treated successfully by the Cesarian section. He thinks this method of treatment preferable to all others in (1) cases of complete previa; (2) cases of previa in primiparae when signs of fetal or maternal exhaustion are evident; (3) when the condition of rigid os is present; (4) where there is a history of previous operative delivery; (5) in transverse positions and in cases of prolapst cord, if the cord is not easily returnable. It is the easiest of celiotomies, and it is also an extremely safe operation, not only for the mother, but for the child, as performed according to modern methods.

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Of all gynecological measures perhaps the use of the douche is most frequent. Some years ago Dr. Byron Robinson, of Chicago, called attention to its abuse as well as proper use in an article which was extensively quoted. Recently Dr. Frank C. Ferguson, of Indianapolis, has written a paper (Medical and Surgical Monitor, Oct. 1900) in which he calls attention once more to the fact that its use in pelvic inflammation involves several factors. The degree of heat is very important. The first action of hot water upon living tissue is to dilate the blood vessels. This is followed by a slowing of the blood-current and increast accummulation of blood in the parts subject to its action. If the heat be continued for a short time, contraction of the blood vessels follows, the rapidity of the current is increast and the parts become anemic. It is upon this secondary action of heat upon blood vessels that the virture of the hot douche depends. But to secure this action the water must have a temperature of from 115 to 125 degrees. The length of time the douche should be continued at each sitting is also of prime importance. It can readily be seen that if the douche be discontinued before the secondary effect of the heat is secured, the parts are left in a worse state than they were before the douche was given. As a rule it matters not how long the douche is continued at each sitting, the longer, in fact, the better, but if it be discontinued under fifteen or twenty minutes, but little benefit will be secured. In most cases of pelvic inflammation a continual hot vaginal irrigation for one or two hours at each sitting will be found to give the best results. The posture of the patient while taking the hot vaginal douche is of great importance. The usual way of sitting or squatting over a vessel is the very worst position she can assume. In such position the vagina is thrown into folds and its walls approximate closely together, so that it is impossible for the water to come into contact with any great area of the vaginal surface. The same objection applies to the dorsal position only in a lesser degree. The best position is that known as the Sims' position, in which the vagina baloons out and its folds are obliterated. In this position the hot water is thrown directly against the roof of the vagina where it is most needed, and it irrigates every portion of the vaginal surface. This position is sometimes more inconvenient, and requires more preparation than the others spoken of, but the greatly increast efficiency secured in the Sims' position amply repays for all the extra trouble required. The height of the fountain above the escape pipe is an important point to consider, both with reference to the quantity of water used and the comfort of the patient. It goes without saying that the greater the vertical distance between the fountain and the point of discharge, the greater will be the force of the current, and the greater will be the discharge of the water in any given time. Now the forcible impact of a stream of water having a fall of four or five feet is so great that it will oftentimes be very painful and at all times uncomfortable to the patient. Besides the quantity of water used, to use a slang phrase, "cuts no ice." It is the measure of continual heat that is desirable and not the quantity of hot water, therefore, the fountain should not be swung more than five or six inches above the pelvis of the patient. This gives a slow, steady force, but carries as much heat to the parts as twice or three times the amount of water would carry when flowing with correspondingly greater force and quantity.

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Prof. of Rectal and Pelvic Surg. in Creighton Med. Col. Surg. to St. Joseph Hospital.
Omaha, Neb.


MEDICAL SOCIETY OF THE MISSOURI VALLEY.

The semi-annual meeting of this society will be held in the City of Omaha, on Thursday, March 21. A number of excellent papers have already been promised, and indications point to an interesting meeting. The transactions will be published in the Herald. This association is now in a most prosperous condition, with a membership of over three hundred. The average attendance, however, should be greater, and we cordially urge the doctors of Missouri and Kansas especially to turn out and get acquainted with their brethren from Iowa, Nebraska and the Dakotas. The annual meeting is now migratory and the next fall session will undoubtedly be held at some point south of the Iowa line. An excursion for members and their families is one of the features on the tapis for the September meeting, and a full attendance is desired at Omaha to discuss this and other important matters.

Those desiring to contribute to the program of the spring meeting will please notify the secretary of their intention at once, as papers will be assigned to a position in the order received. "Come with us and we will do you good."

CHAS. WOOD FASSETT, Sec'y,
St. Joseph, Mo.


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Prof. Materia Medica and Therapeutics in the Omaha Med. Col. Phys. to Immanuel and Clarkson Memorial Hospitals.
Omaha, Neb.


## THE ADVANTAGES OF THE SPRAY IN PSEUDO-MEMBRANES OF THE PHARYNX.

By D. C. Brown, M. D., Danbury, Conn.

Various influences may produce a pseudo-membrane in the pharynx; the character of which will depend upon the nature of the exciting cause, site and method and length of time of its application. From the fact that physical or chemical influences, e. g., steam or irritating vapors may cause an exudation so rich in fibrin that it coagulates, we may infer that it is due to the irritation of the trophic nerve fibres controlling the ntrition of the parts. So in bacterial infection due to different varieties of germs, the same resulting membrane is produced by their developing a ptomany that has a similar action, plus the stimulus that brings hosts of leucocytes to protect the point of threatened invasion. Thus the character of the irritation will modify the nature of the pseudo-membrane. In the simple physical stimulus a simple exudate of serum rich in fibrin that coagulates and is loosely attached to the surface is produced. The bacterial invasion that produces a clinical follicular tonsillitis, causes such an exude in the follicle, plus a limited area on the tonsillar surface, corresponding to the area of irritation, transmigration of feucocytes and some neucrosis of the superficial layers of cells. But the diphtherial infection goes away and beyond this in the extent of its area of infection, the intensity of the action of the toxin produced by its bacterial life and the resulting necrosis of deeper layers of the tissues and also the amount of leucocyte response to to the irritation. Hence the membrane is so much thicker.

A closer glance at the response made to protect the organism in the two invasions of bacteria resulting in tonsillitis or diphtheria according to the germ exciting the trouble is interesting, because almost always the streptococci or staphylococci are concerned in the production of tonsillitis and as they are associated in the mixt infection in diphtheria, a comparison become doubly interesting. No specific germ has been given the distinction of being the exciting cause of tonsillitis, but as stated, usually the pyogenic coccus, staphylococcus aureus and streptococcus are present and may be the causation factor. The invasion takes place in follicular tonsillitis, usually, well down in the follicles There is rapid production of bacterial colonies, resultant toxines or ptomaines, and general symptoms immediately attest that an inflammation has been inaugurated, before the local response for defenses are visible. Soon, however, serum is thrown out and coagulated at the points of first invasion, the follicles, and onto the surface of the tonsil if that also has been infected. Then come the leucocytes and are poured out for the defense as a reserve guard to the serum. The forces of defense almost always being sufficient, and a self limited disease the result. There may, however, be complications due to unfavorable conformation of the tonsil, excessive virulence of the invading bacteria or insufficiency of the organism to produce leucocytes capable of holding pyogenic bacteria. The result is a suppurative tonsillitis. The membrane is thin, as compared with the pseudo-membrane of diphtheria, circumscribed, the cocci not invading the tissues themselves but held in check by the phagocytes, and their alexins. It is only exceptionally that nature fails to protect sufficiently and then it is deep in the pits that artificial reinforcement is needed.

Now take the mixt infection in diphtheria, with Klebs-Loeffler bacillus, and streptococcus or staphylococcus aureus or both. The initial challenge is sent in by the Klebs-Loeffler, usually from the tonsillar surface spreading with greater or less rapidity to the pillars of the fauces, uvlua and posterior pharyngeal wall. The immediate response is in tumefaction of the tissues, the exudae, and then necrosis of tissue. The toxin is intense in its action and the phagocytes come hurrying into the breach. They throw off the substance—alexin, in the effort to annihilate the invaders and it is proable that the alexin is a sufficient germicide that it may kill some and atenuate others of the invading host. These already dead or quiescent, the phagocytes take up, and have the power to digest; others yet vital they also draw in but with the hastening advance the phagocytes are getting further from their base of supplies and at length have penetrated the enemies lines so for that his toxic influence is too great for the phagocytes and they succumb. They and their lellows fall, a barrier to the further entrance of the diphtheria bacteria. While the phagocyte has been so engaged in mortal conflict with the bacillus of diphtheria it has been unable to pay any attention to the allies, the pyogenic cocci. The chemotaxis of the Klebs-Loeffler has been so positive that the phagocyte could not stop to attend the cocci in its presence but must neglect them almost entirely. Why this is so is not known. It may be that the toxin from the cocci is unperceived. It may be that alexin from the phagocytes is so impaired by the toxin from the diphtheria that its ordinary action upon the cocci is neutralized. Whatever the explanation, the fact is that the diphtheria has made a necrotic breach through which may penetrate the cocci without hindrance from the phagocytes. The result is the tedious process of combating the cocci at the distant points at which they are held up and a long siege of glandular infection or perhaps metastatic abscesses. The membrane of diphtheria is thus much thicker, more adherent and the underlying curface less protected from it greater loss of tissues.

To enumerate the conditions: The exposed surface of the pseudo-membrane in diphtheria has the diphtheria bacillus in abundance reproducing itself and generating toxins. It diminishes in number near the living tissue and none of them have penetrated the live tissue. The toxin, however, may be absorbed and the bacilli are capable of infecting a new area. The mixt or single form of cocci are less numerous on the surface but increase in numbers as we penetrate the membrane and may enter the or-

ganized tissues themselves. The material from the organism are superficially the coagulated fibrinous serum, extending all the way through; dead superficial layers of true membrane; dead phagocytes; then, living phagocytes and their alexins and lastly, vital tissue denuded of its natural protecting membrane but covered with this pseudo-membrane.

So much for the resistence that the organism is able to make to the attack. Now by one of the greatest acquirements of modern medicine we are able to neutralize the toxin by the use of antitoxin. It does not stop the production of toxin, but it does either neutralize the toxin absorbed or renders the system more or less protected, immune, from future immediate effects. Clinically we are all pleased to believe that it may hasten the separation of the pseudo-membrane. Perhaps it does.

Natural forces have demonstrated themselves inadequate to protect from invasion and only partially able to subdue the enemy after he has gained a foothold, while he is drawing from a rich base of supplies and recruits. It is with the spray better than other means that you may attack the enemy in the rear, destroy his supplies and prevent the recruits from joining the line of battle. Irrigation fails to give the penetrating power necessary to get to the middle layer of the pseudo-membrane. It and gargles are good for cleansing, but I do not see the reason for the oblivion that modern teaching is consigning the spray to. I will admit that harm may be done with it. So it may with an irrigation tube. A child fights against it. So it does against irrigation, and the young cannot gargle. To prevent the errors that the attendant, if not a trained nurse, is liable to make, I always try to make an early application myself, and insist in the first place on good light. Next a depresset tongue and a good view of the infected area as evidenced by the pseudo-membrane. Then with the tongue depressed by the left hand I shoot diagonally across from one side of the mouth into the opposite side tonsil, or the pseudo-membrane, whether it is on the tonsil or not. Avoid the uvula unless covered with pseudo-membrane, and in fact avoid any healthy membrane with the direct force of the spray, for I aim to get force enough to see the tissues splay out with the spray. Each man who uses the spray, I presume, has his own favorites and those that he relies upon. Personally I have two that I use in accordance with the case. The first is Hydrozone, and I direct that the nurse put two teaspoonfuls with 3 to 8 teaspoonfuls of water and use at first every half hour or hour. I use this especially in all denser membranes that the Hydrozone may break up and disinfect the middle layers of the pseudo-membrane. It makes a way pfor other antiseptics which can then be used if you have any fear about too free a use of the Hydrozone.

The second spray is a solution of Formaldehyde, Merck's one-fourth per cent or Formalid or Berolyptol, which have the same amount of formaldehyde besides other aromatic disinfectants.

| ℞ Sol. Formaldehyde, ¼ % | 30-60 | ʒ j—ʒij. |
|---|---|---|
| Kal. chlor., | 8 | ʒij. |
| Acid Boracic, | 4 | ʒ j. |
| Glycdrine, | 15 | ʒss. |
| Aq. ad | 120 | ʒiv. |

M. Sig. Use in spray after the Hydrozone.

This I make the standby and vary the strength according to the conditions, and continue with it when the pseudo-membrane has become so thin that I do not care to continue with the Hydrozone. Remembering the middle layers of the pseudo-membrane and the depths of the crypts, I shoot hard and quick and resort to the spray early, and very often do not have to use the antitoxin.

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### A RANCHMAN'S DISGUST.

I never take the paper now, jest quit it in disgust,
An' so sweiled up with righteous rage I honest thought I'd bust;
I writ the editor to stop a sendin' it, or I
Would grab a hefty club an' call to know the reason why!
Fur nearly twenty years I've took the Jayville Sarpent's Tooth,
An' helt it next the Bible fur a tellin' gospel truth;
But now I'll never let my eyes rest on the thing agin,
Fur givin' it encouragement 'd be a mortal sin!

I sot with eyes a buggin' out a readin' of a band
O' men in tropic jungles facin' death on every hand,
Whar sarpents was a hissin' 'round, an' lions laid in wait
To leave their bones a gleamin' in a ghastly naked state!
An' how they fought with cannibals that hankered fur their meat,
Regardin' it a luxury almighty hard to beat,
Then had the thrillin' story end with information that
They was a huntin' roots for Dr. Skinny's Anti-Fat.

I read one orful story of a gay an' gallant knight
That battled with a dragon in a rough-an'-tumble fight;
The pictur o' the monster with its baker's dozen heads
Enough to skeer the sleepers of the graveyards from their beds.
I felt like yellin' "Glory!" when the gallant feller stood
One foot upon the monster an' his spear all splasht with blood.
An' then I larnt the dragon was the fever an' the chills;
The knight, ol' Dr. Knockem's Pink Complected Quinine Pills.

Once I sot my wife to cryin' till I thought her heart would break,
An' got my own eyes leakin', an' my lips begun to shake,
Readin' 'bout a lovely maiden tellin' all her folks goodbye,
An' a sayin' she must leave 'em for a mansion in the sky.
Then a angel neighbor woman come a runnin' in an' told
Of a heavenly decoction that was wuth its weight in gold,
An' the gal was soon as chipper as a jaybird on the wing,
An' was singin' grateful praises of Dufficker's Liver King.

But the one that capt the climax was a sermon that I read
From a famous Eastern preacher, at the close of which he said
He was goin' to quit discoursin' of the glories up on high,
Fur there now was no occasion fur his followers to die.
If they'd foller the directions of O'Whacker's Anti-Death
They would never quit a livin' from a scarcity of breath;
Then I tore the sheet in fragments an' I stompt it on the floor,
An' my wife hain't yit recovered from the awful way I swore!

Denver (Colo.) Evening Post.

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### CLINICAL NOTES AND COMMENTS.

Dr. T. D. Crothers, Editor, Quarterly Journal of Inebriety, in the January, 1901, number, writes: "Antikamnia has become one of the standard remedies, particularly in Influenza. It is prepared with various drugs in tablet form, the latest, a laxative tablet, with quinine and some mild cathartics, called 'Laxative Antikamnia and Quinine Tablets.' All of these forms are very attractive and palatable. We have never seen a case of addiction to antikamnia, hence we prize it very highly as one of the most valuable remedies for diminishing pain without peril. We have used it with excellent results to quiet the pain following the withdrawal of morphia. We have received from this company many complimentary notices showing the vast influence it has secured among regular practitioners. The object of the antikamnia in 'Laxative Antikamnia and Quinine Tablets' besides its antipyretic and analgesic effect, is the prevention of all griping, nausea and other unpleasant effects generally produced by purgatives when administered alone."

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### SONG OF THE TAPE WORM.

By Robert G. Ingersoll.

O! I am a jolly tape-worm,
And I live in a gallant man,
Who labors day and night for me
As hard as ever he can.

I gnaw his bowels every day
And fill him full of pain,
'Till like a burning snake he writhes,
And the sweat runs down like rain.

O! I lie in his guts and laugh
To see him work and eat,
'Till he starves his wife and children
To give a tape-worm meat.

The jaws of man make music
That drives me wild with glee,
And I chuckle with joy when I think
How the good God cares for me.

I am only a worm I know,
And a worm of low degree,
But I bless the Lord with all my heart
For making a man for me.

The Lord is very good to me,
And I thank him all I can;
But after all I must confess
He's damned hard on my man.

[*Note—A bit of impromptu verse written by Col. Ingersoll many years ago in reply to a religious poem on Sparrows, especially written for the Colonel and sent to him by some long-for-forgotten but well-meaning person.—Ed. Raven.]